The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 295.—Vol. XI.] LONDON: SATURDAY, APRIL 17, 1841. [Price 6d.

STANNARIES OF CORNWALL.
IN THE VICE WARDEN'S COURT.

PURSUANT to a decree of the Vice-Warden's Court, made in a cause of "Morcom and others *v.* Codner and others," the creditors in respect of the CUDDRA CONSOLIDATED MINES, in the parish of St. Austell, within the said Stannaries, are forthwith to come in and prove their debts before the registrar of the said court, at his office in Truro, or in default thereof, they will be excluded the said decree. CODE, SONS, and SHILSON, solicitors, St. Austell.
Dated April 12. PAUL and ROBERTS, solicitors, Truro.

SHARES IN MARAZION MINES FOR SALE.

TO BE SOLD, BY AUCTION, on Wednesday, the 21st day of April inst., at Three o'clock in the afternoon, at Pearce's Hotel, Penzance, by Mr. W. RICHARDS, auctioneer, Thirty-two parts or shares of and in all those tin and copper mines, called or known by the name of the MARAZION MINES, and of and in the engines, machinery, and materials, now thereon.

For particulars, application may be made to the agent, on the mines; or at the offices of Messrs. John and Rodd, solicitors, Penzance.—Dated April 6.

GLAMORGANSHIRE.—VALUABLE FREEHOLD ESTATE AND COAL MINES.

TO BE SOLD, BY AUCTION, by Mr. M. WHITTINGTON (by order of the mortgagee, under a power of sale), at the Castle Inn, Neath, on Thursday, the 22d day of April next, at Two o'clock in the afternoon, subject to such conditions as will be then produced, unless previously disposed of by private contract, of which due notice will be given, all that MESSUAGE or TENEMENT, FARM and LANDS, commonly called or known as NANSTALLON, otherwise NANSTALLWN, situate and being in the several parishes of Ystradgunlais, in the county of Brecon, and Cadoxton juxta-Neath, in the county of Glamorgan, containing, by estimation, 160 acres, or thereabouts.

The situation of this property is well adapted for the erection of ironworks, having a plentiful supply of coal and iron ore upon the estate, with the command of two fine streams of water. There are six seams of coal, containing, in the aggregate, forty feet, or thereabouts; the seams of iron ore are also very productive, and have been proved to be of a very rich quality. This estate is also of great value, considered as the key to all the minerals under the Drim Mountain, several hundred acres in extent. The property is situate six miles from the Neath Canal, at Aberdulais, and three from the Swansea Canal, at Ynisecdwin, to which place there is a ready communication by a railroad, which passes through the property, to the neighbouring quarries of limestone. There is also a valuable right of common upon the Drim Mountain attached to the estate. A small piece of the waste ground, containing sixty perches, or thereabouts, in extent, has been let for a term of which eighty-seven years are now unexpired, at the annual rental of £1, and the estate will be sold subject thereto. An abstract of the powers under which this property is sold will be produced at the time of sale.

For further particulars, and to treat for the purchase, by private contract, apply to Mr. Montague Grover, solicitor, Cardiff; or to the auctioneer, Neath.—All letters to be prepaid.

SOUTH WALES—COLLIERIES OF ANTHRACITE COAL AND IRON MINES.

MESSRS. BRAY and SON have the honour to announce, that they are instructed to SELL, by AUCTION, at Garraways, on Wednesday, April 28th, at Twelve for One, in three lots, the very valuable freehold estate of Thornhill, in the county of Carmarthen, containing 750 acres, together with the very extensive and valuable MINERAL PROPERTY adjoining, running under upwards of 2000 acres. The peculiarly favourable position of this property, its extent, compactness, and intrinsic value, are such as to be far beyond the limits of an advertisement, but which are fully detailed and set forth in the particulars, with lithographic plans and sections, which will at once establish it as one of the most desirable opportunities for the investment of capital which has been offered to the public for some years.

Particulars may be had of Messrs. Bicknell, Roberts, Finch, and Neate, 57, Lincoln's Inn-fields; at the Ivy Bush, Carmarthen; Mackworth Arms, Swansea; Bush Inn, Bristol; York Hotel, Manchester; Hen and Chickens, Birmingham; Exchange, Liverpool; Bell Inn, Gloucester; Hop-pole Inn, Worcester; of Mr. Gibb, Royal Hotel, Edinburgh; Buck's Head Hotel, Glasgow; Royal Hotel, Dundee; Plough Inn, Cheltenham; Tontine Hotel, Sheffield; Royal Hotel, Southampton; and at the offices of the auctioneers, 259, High Holborn.

The property may be viewed on application to Mr. Jacob Davies, at the Cross Hands Inn, or at the house at Thornhill.

Pumping, Lifting, Atmospheric, and High Pressure Steam-Engines and Boilers, Railway Waggons, Boats, Colliers', Smiths', and Carpenters' Tools, other valuable Colliery Machinery and Utensils, Draught Horses, Carts, &c.

TO BE SOLD, BY AUCTION, by MR. T. M. FISHER (by order of the proprietors, Messrs. Thomas Livesey and Co., in consequence of the termination of their lease), on Wednesday, Thursday, and Friday, the 12th, 13th, and 14th days of May, 1841, at the Alkrington Colliery, 4½ miles from Manchester, on the Rochdale road, the very important and valuable COLLIERY MACHINERY and UTENSILS, including capital pumping engine with triple beam, cylinder 76½ inches diameter, stroke 7 feet 6 inches, with remarkably strong and well-fitted apparatus for pumping water from a depth of 150 yards by three lifts of pumps, with one brass and two iron working barrels, 16½ inch diameter; condensing steam-engine, cylinder 20 inches diameter, stroke 5 feet, with winding apparatus; ditto, ditto, cylinder 14½ inches diameter, stroke 4 feet; atmospheric pumping engine, cylinder 33 inch diameter, 6 feet stroke, with two lifts of pumps, 11 inch working barrels, raising the water 50 yards, and six horse high pressure steam-engine, with boiler, rope, and machinery for drawing up an inclined plane 720 yards long; two cylindrical fluid steam-boilers, 22 feet long, by 3 feet diameter; one ditto, 2 ft. 3 in. by 8 feet diameter; one ditto, 12 ft. by 3 ft. 6 in.; and one ditto, 12 ft. by 6 ft. diameter, each with the feed pipes, cisterns, safety valves, doors, and bars; 3000 yards of wrought-iron railway, with the chairs, sleepers, abunts, and branches, the rails weighing 21 lbs. to the yard; twenty-six large, strong, well built coal waggons, now used for conveying the coals from the colliery to the Rochdale Canal, along the rails, which are 4 ft. 8½ in. apart; a very large quantity of cast-iron pit rails and waggons, of the best construction; thirteen boats, for conveying coals to Manchester, nine of which are nearly new, having been built on the premises, of first-rate materials and workmanship; colliers' working tools; smiths' bellows, anvils, tools, and several valuable sets of stocks, taps, and dies; carpenters' tools and benches, two lathes, large quantity of timber, rod, bar, scrap, and cast-iron, new and old brass, and brass furnace and tools; wheelbarrows, planks, benches, ropes, chains; capital iron weighing machine, up to four tons, by Galloway; the counting house fixtures, and eleven useful draught horses, shaft and leading gears, six broad wheeled carts with iron arms, and other effects. The whole may be viewed on and after Monday, the 10th May, and catalogues had on the premises, or of the auctioneer, 17, Princess street, Manchester.

TO BE SOLD, BY PRIVATE CONTRACT, that extensive coal field, known as the HAZLERIGG COAL MINES, together with the long established, and valuable current going colliery, called FAWDON COLLIERY, situated about three miles north of Newcastle-upon-Tyne, with all the fixed and moveable stock thereon.

The coal, which is the High Main, or Wall's End seam, is of excellent quality for domestic purposes, and has been well known in the London and coast markets for the last twenty-six years as "Newmarch's Wall's End." A new winning was completed between one and two years ago, and a pumping-engine erected thereon, considerably more than competent to the fullest requirements of the colliery, and no outlay will be needed in the winning of new portions of coal to this colliery for a long period of years. The great extent of the Hazlerigg coal field, comprising about 4500 acres, affords the opportunity of establishing other valuable collieries.

For further particulars, application may be made to Mr. James Easton, the colliery viewer; to Mr. Thomas Forster, Haswell colliery; to John Wilkinson, Esq., solicitor, Hull; to Messrs. Bell, Broderick, and Bell, solicitors, Bow Church-yard, London; or to Messrs. Carr and Jobling, solicitors, Newcastle-upon-Tyne.

Newcastle, November, 1840.

NORTH KENT RAILWAY.—EVERY INFORMATION relative to this undertaking may be OBTAINED by application at the office, No. 42, Lombard-street, between the hours of Ten and Four o'clock daily.

THE ONLY PAPER EXCLUSIVELY DEVOTED TO RAILWAY INFORMATION.

THE RAILWAY TIMES, published weekly, price 6d. stamped, contains full and accurate reports taken exclusively for this paper of a railway meetings, with directors' and engineers' reports, and other official documents at length—authentic reports of the progress of railway works—notices of railway publications and plans—all the public and private proceedings of Parliament on railway bills—notices of railway improvements of every kind—detailed reports of all law cases affecting railways—the fullest particulars of the rise and progress of foreign railways—complete railway share list—London, Liverpool, and Edinburgh—railway traffic returns—and a great variety of economic information. The *Railway Times* is an excellent medium for railway and scientific advertisements.

Published every saturday morning in time for the Morning Mails; office, No. 123, Fleet street, opposite St. Bride's Church, London; and may be had of authorised agents in Liverpool, Birmingham, Manchester, Bristol, Bath, and Edinburgh; also by order of all booksellers and newsmen in town and country.

THE GARDENERS' CHRONICLE, a weekly record of rural economy and general news, the horticultural part edited by Professor Lindley. In consequence of the continued demand for complete sets of the *Gardeners' Chronicle*, arising from the weekly increasing list of subscribers, Nos. 1, 2, 3, and 4, published in January, have been reprinted; and, to save all parties expense, two numbers of the original edition have been comprised in one of the present, by omitting the political and other temporary matters. Orders received by all newsmen. Price, stamped to go free by post, 8d.—4, Charles-street, Covent-garden.

TO ENGINE-BUILDERS, IRON-FOUNDERS, &c.—Wanted, by the Hartlepool Iron Company, an AGENT, to take the management of an Iron and Brass Foundry, and who thoroughly understands the building of engines. A liberal salary will be given to a competent person. Application to be made to Stephen Robinson, Esq., engineer, Hartlepool.
Hartlepool, April 14.

WANTED, in a locomotive and other engine manufactory, in one of the principal towns in the kingdom, two respectable Youths as APPRENTICES. As the utmost care and attention will be bestowed in instructing them in every branch necessary to a full and competent knowledge of the business, a commensurate premium will be expected.—Letters addressed "Mechanicus," and left at the office of this Journal, will be attended to after the 1st May.

SHINING ORE FOR SALE.—A quantity of this ore, of superior quality, has been raised at Hennock, Devon. SAMPLES may be had, gratis, on application to Mr. Wills, Kelly, near Chudleigh, Devon.

TO IRON-MASTERS OF MODERATE CAPITAL.

TO BE LET, with immediate possession, on very advantageous terms, distant about seven miles from the sea, a NEWLY-ERECTED MILL and FORGE, with a Vaughan's Blast Engine, for smelting ore and working iron, with an unlimited and easy supply of the best ore, varying from 40 to 60 and 70 per cent.; fuel of all kinds to be had on easy terms, the compressed peat also near at hand. The whole worked by water, and will be increased by the owner to any extent required upon a fixed rent for capital laid out.

Further particulars to be had, by a line addressed to "Mr. Jones," at Caines and Co.'s, booksellers, 2, Halkin-street west, Belgrave square.

LEAD MINES TO LET.—WANLOCKHEAD LEAD MINES, in the parish of Sanquhar, and county of Dumfries, the property of His Grace the Duke of Buccleuch and Queensberry.—The present lease of these valuable mines has been extended for another year, to allow time for the arrangements necessary in settling with the present tenants; it will in consequence expire on the 14th day of August, 1842, instead of 1841, as formerly advertised, and the lease of the land held by the present lessees, in connection with their mining operations, will expire at the term of Whitsunday, 1842. The proprietor is now ready to treat for a new lease, to commence from and after these dates. Any company or individual of enterprise, acquainted with such matters, and possessing an ample capital, will probably find these works well worthy of their attention.

For further particulars apply to William Maxwell, Esq., Chamberlain on the Estate of Queensberry, Dalveen, by Thornhill; Messrs. Gibson and Home, W.S., 17, Charlotte-street, Edinburgh; or Messrs. Oddie, Forster, and Lumley, solicitors, Carey street, London.

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the safest, cheapest, and most expeditious mode of effecting this very hazardous operation. From many testimonies to its usefulness with which the Manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c., &c.—

"I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall.

THAMES TUNNEL.—Open to the public every day (except Sundays) from Nine in the morning until dark. Admittance, One Shilling. The entrance is on the Surrey side of the river, close to Rotherhithe Church. The Tunnel is brilliantly lighted with gas. Visitors can now walk under the entire breadth of the river, and approach the Shield, which is advanced to within limits of high-water mark at Wapping.

By order,
Company's Office, Walbrook-buildings, Walbrook, March, 1841. J. CHARLIER, Clerk to the Company.

N.B.—Conveyances to Rotherhithe, by omnibus, from Piccadilly, Charing Cross, Fleet-street, and Gracechurch-street; and, by steam boats, from Chelsea, Vauxhall, Lambeth, Hungerford, the Old Shades Pier, and London Bridge, to the Tunnel Pier at Wapping.

OPENING.—GREAT NORTH of ENGLAND RAILWAY.—The public are informed that the GREAT NORTH of ENGLAND RAILWAY was OPENED from YORK to DARLINGTON, for public traffic, on Wednesday, the 1st of March.

The trains will depart at the following hours:—

FROM DARLINGTON TO YORK.

5 45 A.M.—Taking passengers for London, Derby, Birmingham, Sheffield, and Manchester.
8 A.M.—Taking passengers for London, Derby, Birmingham, Sheffield, Manchester, Leeds, Selby, and Hull.
12 30 P.M.—Taking passengers for Derby, Sheffield, Manchester, Leeds, Selby, and Hull.
3 P.M.—Mail, taking passengers for London, Derby, Leicester, Birmingham, Sheffield, Manchester, Leeds, Selby, and Hull.
6 P.M.—Taking passengers to York.

FROM YORK TO DARLINGTON.

6 A.M.—Bringing passengers from York.
7 20 A.M. Mail, bringing passengers from London, Leicester, Derby, & Sheffield.
9 35 A.M.—Bringing passengers from Manchester, Leeds, Selby, and Hull.
2 30 P.M.—Bringing passengers from Birmingham, Nottingham, Derby, Sheffield, Manchester, Leeds, Selby, and Hull.
6 P.M.—Bringing passengers from London, Birmingham, Derby, Sheffield, Manchester, Leeds, Selby, and Hull.

Until further notice, passengers will only be booked as far as York, where the carriages are changed.

Until the 6th of April, 1841, the London mail trains will leave York at 3 15 A.M., instead of the hours stated in the time table.

On Sundays only the mail trains run.

FARES BETWEEN YORK AND DARLINGTON.

Passengers:—1st class, 12s.; 2d class, 9s.
Carriages:—On two wheels, 20s.; on four wheels, 30s.
Horses:—One, 2s.; two, 3s.; three, 4s.

Par ies riding in their own carriages, and children under seven years of age, at lower rates.

Carriages and horses must be at the station a quarter of an hour before the departure of the trains; and, to prevent disappointment, previous notice should be given to the station.

The company will not be responsible for luggage, unless it is booked and paid for according to its value; and passengers are particularly requested to have their name and address fully marked thereon, and to satisfy themselves that it is deposited on the carriages.

PATENT IMPERIAL OIL.—THE ONLY SUBSTITUTE FOR SPERM.—To find a substitute for sperm oil for burning and for machinery has engaged the attention of scientific men for many years. A long course of combinations and experiments has at length led to the production of an oil not merely equal, but, in the opinion of several practical men, superior to sperm oil for either of the abovementioned purposes. For burning, no alteration whatever is required in even the finest lamps; the same cotton (rather coarse unbleached is recommended) as for sperm oil may be used; less oil is consumed, in the proportion of a pints of this to 1 pints of sperm; the light produced is superior; the combination of the cotton is scarcely so great as when sperm oil is used; and the lamps, therefore, will require no attention during the longest night. It does not freeze, and will not therefore require warming during the coldest weather. With relation to sperm oil, the difference in the quantity consumed is nearly 30 per cent., less—one gallon of this burning 77½ hours, while an equal quantity of sperm in the same lamp was exhausted in 55½ hours, and the price of this oil being 40 per cent. under that of sperm, the saving of course to consumers will exceed one-half. The same lamps as those now employed may therefore be used at less than one half of the present cost—that is, at the same expense as if sperm oil were under 6s. per gallon, instead of 10s., as now paid. Beyond this statement, and in confirmation of it, the proprietors, already assured by experiment of the advantage of this oil for the purposes of MACHINERY, will merely add a copy of the opinion of a celebrated chemist and machinist, given without knowledge of the parties, after several trials:—"I have examined and tested your oil in comparison with the finest sperm. It requires a much higher temperature to produce congelation, and will endure a lower temperature by 10 deg. Fahrenheit without freezing. It is entirely free from acid of any kind—will not decomposite metal—and, therefore, will not injure the tubes of the finest lamps. Under precisely the same circumstances, I find it gives as strong and as brilliant a light as sperm oil, does not carbonize the cotton more, and perfumes less smoke. It therefore possesses higher qualities than are known burning oil. To test its qualities for machinery, I applied it and sperm to an equal trial with the greatest friction that could be produced by a powerful steam-engine. I found them nearly equal in their effects, the difference, however, being in favour of your oil, the quantity of ferruginous black matter produced by it being less than that produced by sperm. I, therefore, deem it established beyond doubt, that it may be advantageously substituted for sperm oil for pressing machinery."

Orders must be addressed to Messrs. S. and H. Foster, 187, Franchurch-street, London, who will forward sample where required.—Price per ton for, 6 months, or 5½ per cent. cash.

ANGLO MEXICAN MINT COMPANY.—Notice is hereby given, that the ANNUAL GENERAL MEETING of proprietors of shares in this company will be held at their offices, 9, New Broad-street, on Tuesday, the 4th day of May next. The chair will be taken at One o'clock precisely. At this meeting two directors will be elected—one in the place of John D. Powles, Esq., who goes out by rotation, but is elegible to be re-elected, and one in the room of Benjamin Shaw, Esq., who has resigned. G. B. LONSDALE, Sec.
9, New Broad-street, London, April 6.

PROCESS FOR EXTRACTING THE ORE IN LEAD MINES CONTAINING GOLD AND SILVER.

The beautiful experiments of M. Becquerel on the adaptation of electro-chemical action to effect the separation of lead and silver in the galena containing gold and silver, have demonstrated the possibility of applying electricity in the management of these mines. This valuable discovery has, indeed, been already adopted on a large scale by M. Becquerel, in the experimental manufactory that he has established at Paris; but, as is often the case in inventions of great importance, many years will probably elapse before his system is universally adopted in the working of lead mines containing silver. M. Becquerel observes, in reference to the method of extracting the metal at present pursued:—As a proprietor of the auriferous and silver-lead mines in the Duchy of Baden, I have carefully attended to the various processes that are generally adopted, and I am convinced of the possibility of obtaining a much greater produce from the mines by improving this process.

The observations that I have made, may be of some use to the lessees or proprietors of lead mines containing silver or gold. I will mention them in succession, pursuing in detail the method of working in the mines that I have superintended for ten years. Many of these mines are very rich in silver and gold. First, as to the manner of washing the ore. By the manner in which the process is now executed, it is evident that a considerable quantity of the ore is lost, and the portion lost is that which is of the greatest value, the sulphuret of silver.

The gold and silver galenas have in general for their matrix a very hard quartz, in which are irregularly imbedded sulphurets of silver, lead, iron, sulphate of barytes, or carbonate of iron, and also fluor-spar. The variety of sulphurets that I have just enumerated contain gold, but in such a state of tenuity that it is invisible in a microscope, and eludes every attempt to analyse it; yet gold does exist, since it is found in considerable quantity in assaying the silver. The ore broken into pieces of from two to five centimetres, falls by degrees into the trough in which the stampers work. A current of water passes through this trough, which is closed in front by a very close iron grating. The percussion of the stampers must be continued for a long time to reduce the ore sufficiently small to admit of its passing through the grating, and being carried into long canals called labyrinths, where it is deposited at a distance further of nearer in proportion to its size. In attentively examining what takes place during the process of washing, it is remarked, that the fragments of ore, owing to the great hardness of the matrix, resist the percussion of the stampers for a considerable length of time, and that they only very gradually diminish in size till they are completely broken. The ore thus successively reduced into minute pieces, is gradually carried away by the current of water beyond the labyrinth, where it ought to be deposited; and the loss of this part of the ore is more to be regretted, as the sulphuret of silver being very friable, it is the sulphuret that is first carried away; none remains but what is contained in those pieces of the ore, which from their size and weight have had power to resist the influence of the current. I am well assured that the loss which I have just stated is but too certain, as at the extremity of a labyrinth which reached for 200 metres I took up water that was impregnated with the deposits of ore. This sediment, on being put to the test, yielded in the same weights a proportion of silver equal to that of the sediment in the water at the entrance of the labyrinth. The particles of gold disseminated in the sulphurets of lead, iron, and silver, not in a state of combination, but only united mechanically, escape in the same way.

Many ingenious men have in their writings indicated as a method of collecting the gold contained in minerals and in auriferous sands, the levigation of these very finely comminuted substances; but I cannot suppose that in this manner they imagine it possible to obtain the whole of the gold; this could only be done by means of chemical analysis. A very simple experiment will suffice to prove how very inefficient the levigation is for this purpose. Take two discs formed of an alloy composed of lead, silver, and gold, and give them a circular motion against the surfaces of each other, by keeping them immersed in a vessel full of water. The water will very soon be rendered turbid and cloudy. If in the same water two discs of the mineral in which the ores are imbedded (quartz, for instance) are afterwards rubbed against each other, long enough to add new particles to those already contained in the fluid, all the metallic and earthy particles will not be settled till after eight days, and no trace will be perceived on the outer surface of the glass vase that the particles have been deposited according to their specific gravities. They will appear all mingled. Hence it may be concluded that when metals, ores, minerals, and sands, in a state of extreme division are mixed, levigation is an ineffectual means of producing their complete separation.

The next operation to be considered is that of smelting the ores. The products of the mines are also greatly diminished at present by the loss of lead, silver, and gold, in the operation of smelting, in either reverberating or other furnaces generally used. In the former case the roasting of the slag is a long and difficult operation, and with many ores almost impossible; those of Baden, for instance, of which the matrix composed of quartz, of sulphate of barytes, and of fluor-spar, is fusible to such a degree, that in making use of the reverberating furnace it would be necessary to smelt without previously roasting, and to let the first melting run out, which it would be necessary afterwards to calcine before reassaying in another furnace, which must also be resorted to, to extract part of the refractory scorie. The losses in smelting are occasioned—1st, By the volatilisation of a great quantity of sulphuret of lead and sulphuret of silver, before their reduction. 2d, By the action of the fluxes, and particularly by the silex on the lead at its different degrees of oxidation, from whence is produced the silicurets of lead which unite with the scorie. 3d, By the alkaline sulphurets and persulphurets, which in a great degree absorb the gold contained in the ore to be smelted. 4th, By the great quantity of fuel necessary to be used to retain in a state of constant fluidity the enormous proportion of the scorie of forges and furnaces obliged to be added to the melted ore, in order to secure the metal from being reduced by oxidation and volatilisation during the time it is passing into and remaining in the furnace, where I believe the temperature is raised to a much higher degree than is necessary. 5th, Finally, because, instead of obtaining by one smelting in which there is so great a consumption of combustible, the whole of the lead contained in the ore, only one-half of it is at first extracted, and the other half must be afterwards calcined, which is only an impure metal or sulphuret, in order to be smelted again.

I make no observation on the manner in which the operation of cupelling it is done at Baden, because I believe it is impossible to be managed better. The consequence of the inconveniences that I have enumerated is, that though the produce arising from the gold and silver-lead mines is quite equal to what might be expected in their present conditions, it is yet capable of being considerably increased by improving the method of washing and smelting. I am in possession of the certain method of effecting this, which I shall allude to in another paper.—*Mon. Industrial.*

AMERICAN PATENTS.

[*From the Journal of the Franklin Institute.*]

Improvements in railway bars; Edward Tilghman, civil engineer, Philadelphia, Dec. 5.—"The nature of my improvement is in the so forming the bar that there shall be a reduction of the bright usually given to the T rail, between its head, and the base on which it rests, thereby diminishing the leverage of the rail, whilst its strength and its capability of being firmly secured to the cross tie are provided for by the addition of a rib directly under the centre of the base, which may be made plain, trapezoidical, or with a lower web, as practised in many English edge rails. To fasten this rail I insert the lower rib thereof in gains cut in the cross ties, at the lower part of which gains there is a suitable recess for one side of the lower web; the rail is to be inserted in this gain and wedged securely in its place, where it will be supported conjointly upon the ordinary base, and upon the under part of the lower web."

The claim is to "the addition of the under rib to the T rail, below its base, or seat, in the manner and for the purpose set forth. I do not claim the inserting the lower part of the rail within the thickness of the cross tie, this having been before done, but I do claim the employment of a chair inserted and used in the manner set forth, for the purpose of joining and firmly securing the ends of the railway bars."

The chair referred to consists of a flat plate, which is received into two notches, one in the end of each bar, immediately under its base; the two when put together constituting a mortice that receives said chair, or plate, which is affixed to the cross-ties by bolts or spikes.

Machine for separating corroded and uncorroded lead; E. Clark, New York, Dec. 5.—The semi-corroded lead is to be passed between rollers, furnished with grooves, or chequered, so that the uncorroded lead will be stretched, or bent, and again straightened, and thus the corroded parts be separated from that which remains metallic.

The machine is to be put in motion so that each individual roller will turn inward upon its fellow, and downward; and the lead is to pass through between these rollers in a crimped state to the next series, and so on, when it falls upon an endless apron, and is carried away to be again subjected to the corroding process. The claim is to the combination of plain and grooved rollers, and also the revolving apron, brushes, and scrapers, &c.

A self-acting safety valve; John P. Bakewell, Pennsylvania, Dec. 21.—"The nature of my invention consists in a mode or method of fastening and securing the standard, or upright, which is connected with the fulcrum, pivot, or turning point, of the beam, or lever, of a common safety valve, in such a manner as that the heavier the weight may be which is placed upon the opposite, or long arm of the beam, for the purpose of keeping the valve closed, the more certain and effectual shall be the operation of the apparatus in opening the valve whenever the boiler, or generators, shall have been heated to such a degree of temperature as may be considered dangerous, or liable to become so."

A fusible metallic alloy is to be used in this apparatus, by the melting of which at a given temperature it is intended to insure the operation of the apparatus; the use of this metallic alloy is not claimed, "or the combination of a vectical cord, or stem, therewith—or their further combination with the lever or beam of the safety valve, as these are not new, and are claimed by Mr. Oliver Evans, as his invention." But the patentee claims "the mode in which he has arranged the several parts of the apparatus; that is to say, the attachment or connection of a rod, or stem, to the end of the lever or beam of a safety valve, in such a way as that it shall be the fulcrum, pivot, or turning point of the beam as long as the alloy remains unfused. And the placing a standard or upright between the safety valve and the weighted end of the lever, to which the beam shall shift its fulcrum or pivot whenever the alloy shall become fused or melted."

An improved railroad chair; Britton M. Evans, Pennsylvania, Dec. 27.—This chair is intended to obviate the necessity of wedging the Wigan rail. The chair is to be cast in two parts, one of its sides, or cheeks, being separate from the other, and being removed to put in the rail; when so placed, the loose cheek is driven in, and the rail thereby confined; the patentee says, "I would have it understood that I am aware that railroad chairs have been made with a moveable jaw, and secured by means of wedges; I do not, therefore, claim that as my invention; but what I do claim as my invention, and desire to secure by letters patent, is the making of the moveable jaw with a dovetail to fit into a corresponding slide in the chair, and secured by a pin, as described."

An improved spark arrester; Thomas Rarney, Philadelphia, Dec. 28.—This spark arrester operates upon the same principle with that of Mr. Briscoe, but the improvement consists in greatly enlarging the space allowed for the escape of the draught, through inverted cones of wire gauze, or of perforated metal inserted to a cap plate forming the top of the chimney. Mr. Briscoe used but one inverted cone of this kind. The patentee says, that "in an apparatus of this kind I have used eight such perforated cones; the centre cone at its upper or open end is eleven inches in diameter, and twenty-one inches deep to its angular point or apex, with seven surrounding cones, eight inches in diameter at their open ends, and thirteen to their angular points."

"I am aware that the top or covering of a cap, or hood, has been made of wire gauze, in the form of a single inverted cone or curved segment of a hollow sphere; but it is not possible with a single cone to obtain sufficient escape surface for the draft. I do not, therefore, claim the merely giving to the covering of such a cap the form of an inverted cone; but what I do claim, is the inserting of a number of such cones of perforated metal or wire gauze into suitable openings in the plate of metal which forms the covering, or top, of such a hood or cap, for the purpose of giving sufficient surface for the passage of the draft through the perforations or meshes of such cones. I also claim, in combination with a number of cones arranged and perforated as described, the perforating of the upper sides of the hood, or cap, said perforations being surrounded by a rim retiring from said hood, or cap, and rising up above the upper surface of the top plate thereof, as set forth."

A blowing apparatus for furnaces, &c.; Frederick R. Dimpfel, New York, Dec. 28.—The blowing wheel in this apparatus resembles that in ordinary use, but "between the wind wheel and the outer case a space is left which may be denominated the air chamber. In this space, as also in and around the wind wheel generally, the air will become condensed by the rapid motion of the wheel, and not being able to escape in consequence of the closure between the collar and the outer case, as described, it may be made to exert a pressure of several pounds to the square inch, by regulating the escape opening." The claims are to "the enclosing of the vanes of the wind wheel with circular sides or rims, between which and the outer case there is a space left, as described; and the attaching a collar to said sides or rims, to admit air to the revolving vanes, said collars being made to run air tight, to prevent the escape of air from the air chamber. The whole being constructed and arranged in the manner set forth."

Propelling steam-boats; Benjamin D. Beecher, Connecticut, Dec. 31.—The mode of propelling described by the patentee, is intended, principally, for canal boats. "The invention consists in constructing the bow, or fore part of the boat, so as to accommodate the screw or other propellers which I place there, which are intended, by their particular position, and mode of action, to draw the water directly from the bow, and to give it, as it passes towards the stern, such a direction as shall greatly diminish the resistance offered to the passage of the boat." The propelling is to be, in general, effected by means of two spiral or screw wheels, placed immediately in front, so as to extend completely out to the outwater; and the claim is to "the manner of locating the two propellers in the bows of the boat, in combination with the manner in which I construct and extend the bottom of the boat forward, and thus causing the propellers to act upon the water in a direction inclined from each other, in the manner, and for the purpose, set forth."

A machine for manufacturing lead pipes; Joseph C. Vaughan, and Frederick Leuch, New York, Dec. 31.—This is a rolling apparatus for rolling pipes of cast lead, so as to reduce them in size. There are four rollers consisting of discs of metal of the proper thickness for combining them together, so that they shall, when properly fixed, leave an opening at the place of junction of their peripheries, of the size and form of the exterior of the pipe; for this purpose their edges are fluted in such manner as that each constitutes a fourth of a circle. These four rollers are so placed as that they shall each stand at right angles to the two which are next to it, and they meet by a mitre joint at their edges. A vertical core, or mandrel, is fixed to the frame work of the machine, its lower end passing between the rollers. Upon this mandrel the cast lead pipe is to be placed, and the rollers being properly geared, and made to revolve, the pipe will be rolled out to the desired size. The mandrel is to be made hollow, so as to contain oil, a portion of which is allowed to ooze through small openings at its lower end.

"What we claim as our invention, is the employment of four rollers in combination with the fixed mandrel, in the manner, and for the purpose, herein described; and also the making of the mandrel hollow from the top to near the bottom, to contain oil, and provided with small holes to allow the oil to percolate, and thereby prevent the lead from adhering to the iron."

Earthquakes.—The soil of Sicily is still shaken by the internal convulsions of whose coming the signs have been so long apparent. There have been several shocks of earthquakes at Naples, which have, however, done little damage; but Foggia has been visited by the calamity in a more fearful form, forty-six bodies having been taken from the ruins which it has made.

LAW INTELLIGENCE.

ACTION OF TRESPASS ON MINERAL PROPERTY.

MONMOUTHSHIRE ASSIZES—MARCH 30.

Sir C. Morgan, Bart. v. Thomas Powell.—This was an action of trespass brought by Sir C. Morgan against Mr. Powell, of the Gaer, for having broken and entered certain coal ground belonging to him, and without his consent. The defendant having withdrawn his pleas, and suffered judgment to go by default, the case came on as a "writ of inquiry," to ascertain the amount of damages to be awarded to the plaintiff. Evidence was adduced that, in 1836, the defendant applied to the plaintiff's agent to let him the coal under part of a farm in the parish of Bedwellty, adjoining to a colliery in defendant's occupation, and, after some hesitation on the part of the plaintiff, terms were at length offered to, and refused by, the defendant. That afterwards the defendant, without the knowledge or consent of the plaintiff, broke into that coal, and also into other coal belonging to the plaintiff, at some little distance from it—worked portions thereof, and made roads through the same to coal belonging to other parties. The plaintiff claimed the value of the coal at the pit's mouth, according to the decision in "Martin v. Porter" (reported in the 5th, Meeson and Welsley), whilst the defendant contended that he ought only to pay a fair galeage rent. Conflicting evidence was given as to the quantity of coal worked, and the injury done to the coal cut off from the main body, but unworked.—The learned Judge informed the jury that he did not coincide with the decision in "Martin v. Porter," but, nevertheless, they must act upon it, and he would give the defendant leave to move in the court above to reduce the damages. That they must, therefore, give as damages—first, the value at the pit's mouth of the coal which they believed had been worked; second, such amount as they conceived would compensate for the damage done to the coal unworked; third, such sum, as from the evidence adduced, they deemed to be a compensation for the use of the roads as a conveyance for the coal of other parties. The jury retired for about an hour, and then delivered the following verdict for the plaintiff:—Damages, on the first point, 1400*l.*; on the second point, 1*s.*; on the third point, 20*l.* The learned judge reserved leave to the defendant to move to reduce the damages, by the difference between the value of the coal at the pit's mouth and in the ground.

IRON TRADE—BREACH OF CONTRACT.

SOUTH LANCASHIRE SPRING ASSIZES—APRIL 10.

Rollo v. Marshall.—Mr. Knowles (with whom was Mr. Murphy) stated the case. This was a breach of contract for forty tons hoop iron and a smaller quantity of another description, to be delivered by defendant to plaintiff. The article rose in price, and he did not deliver the iron, and the loss to the plaintiff was, consequently, considerable. The price of the iron to be supplied was 9*l.* 10*s.* per ton. The defendant afterwards offered to pay the plaintiff the sum of 60*l.*, in consequence of its non-delivery. The amount was not, however paid, though the offer was agreed to, and the action was brought to recover that sum. The iron, as specified by letter, was to be delivered in three weeks. The rise in the interim in the price of the iron hoops was from 15*s.* to 20*s.* a ton. The case having been proved, the jury returned a verdict for the plaintiff—damages 60*l.*; costs 40*s.*

PURCHASE AND TRANSFER OF RAILWAY SHARES.

Stewart v. Cauty.—This was an action brought to recover 160*l.*, the amount of the loss sustained by the plaintiff, in consequence of the defendant refusing to take some railway shares he had purchased of him. The plaintiff, Mr. Duncan John Stewart, was a merchant of Liverpool, and the defendant, Mr. Henry John Cauty, was a surgeon there. On the 26th August last the defendant's sharebroker, Mr. Thomas Radford, bought of the plaintiff's broker, Mr. Henry Davies, twenty half shares in the Great Western Railway, at the rate of 52*l.* per share (40*l.* paid and 12*l.* premium), and 2*s.* 6*d.* per share broker's commission. Written contracts, or sale note and purchase note, were signed by the respective brokers at Mr. Radford's office, the defendant being in an inner room at the time, and agreeing to the purchase, but refusing to give more than 2*s.* 6*d.* commission, which the broker agreed to take. The sharebrokers in Liverpool had established certain rules, with which the defendant was acquainted. One was—that the buyer should give the name of the transferree within three days. If the buyer did not give the name within that time, the seller had a right to introduce the buying broker's name, and so make him responsible. When the name was given for the transfer, the vendor was allowed seven days in which to make the transfer. If he made the transfer within seven days, and the buyer did not accept the shares, the vendor might, by these rules, sell them again (which, by law, he would have a right to do, without such stipulation), and to recover from the buyer the difference in the price. Mr. Cauty was asked for the name of the transferree, as soon as the purchase was completed, and he desired them to wait a day or two. They waited three days, and then Mr. Radford asked the defendant to give him the name, or he (Mr. Radford) would become liable. Mr. Cauty said, he did not wish his name to appear, but Mr. Radford gave Mr. Cauty's name as the transferree, otherwise his own name would have been introduced. The next day Mr. Cauty gave the name of "Mr. Little, a gentleman of Gloucester," and the brokers proceeded to get ready the certificate and transfer. Mr. Stewart, though the holder of the shares, had never had them transferred to himself, and he had, therefore, to communicate with the party in whose name the shares stood in the books of the company. Two days after the defendant had given the name of Little, he went to Mr. Radford, and insisted on having the transfer, or he would not, he said, take the shares. Mr. Radford reminded him, that he could not call for the transfer then, as the other brokers were entitled to seven days from the time of receiving the name. Mr. Cauty said—"If you don't give it me on Monday, I won't have the shares at all." This was on Saturday, the 29th August. Mr. Radford said—"Don't force me to say this to Mr. Davis, or he may take the whole seven days. I will try if I can induce him to get the transfer ready sooner." He went—the transfer was got ready by the fifth instead of the seventh day; but in the meantime, Great Western shares falling, Mr. Cauty called on Mr. Radford, and told him positively he would not have the shares. There was a formal tender made to him of the transfer, as soon as made, which was not necessary in law, after his refusal to take the shares. He refused to accept the transfer; the shares were afterwards sold, and the loss sustained by the fall in price since the sale to the defendant, was 161*l.* 1*s.*, to recover which sum this action was brought.

Mr. W. Radford (son of Mr. T. Radford) proved the sale of the half shares, and the subsequent transactions.

Mr. Creswell then put in the rules of the Liverpool Sharebrokers' Association.—Mr. Alexander submitted that they could not be evidence, as neither Mr. Davies, the plaintiff, nor the defendant, were members of the association.—The learned Judge said, that he was of opinion that it was evidence; the witness had said, that he had frequently called the defendant's attention to these rules; and it was in evidence that all the sharebrokers acted in accordance with them.—Mr. Alexander requested his lordship to take a note of his objection. He then addressed the jury for the defendant, contending that the sale of the shares ought to have been made at an earlier period after the defendant's refusal to take the shares, when the loss on them would not have been more than 54*l.* on one day, or of 20*l.* on a still later day.—He called no witnesses.

The learned Judge said, that, unless the jury believed the two bought and sold notes to be forgeries, they must believe that a contract had been made as proved. The shares sold at 44*l.* 10*s.* per share, which, with the cost of the transfer (6*d.* 1*s.*), amounted to 161*l.* 1*s.* The main question was, had the plaintiff offered to complete the contract within a reasonable time? He thought there was a very good guide in this case as to what was a reasonable time—viz., the rules of the brokers' association, which required the buyer to render the name of the transferree within three clear days; and, again, seven days after the name was given were allowed for making the transfer. Although parties not members of the association might not be bound by these rules, yet it was proved that all the brokers acted on these rules; in other words, though the periods fixed were a reasonable time. The defendant was from time to time made acquainted with these rules; and then the question was, whether, within these rules, the plaintiff had completed his part of the contract within a reasonable time. These rules were made for the general convenience of those who were trafficking in shares. In event of payment not being made (as in this case), the seller was to be entitled to sell the shares. Here the plaintiff was ready to transfer in five days, and the jury were to say whether this was a reasonable time. Then before the seller could sell, one of the rules required that twenty-four hours' notice should be given of an intention to sell. Now, it was a week afterwards before they would be sold. It did not appear how that delay arose. The fair test of damages was the difference between the price agreed on and that for which the shares would have sold for on a proper day. The defendant had given no evidence as to the price the shares would have brought on any day within that week. Under these circumstances, the jury must say, in the best manner they were able, what they thought the proper amount of damages, supposing they considered the plaintiff entitled to the verdict.—The jury found for the plaintiff, damages 161*l.* 1*s.*; costs nil.

IMPORTANT COMMERCIAL QUESTION—LIABILITY OF PARTNERSHIP.

LIVERPOOL ASSIZES—APRIL 13.

Boult and another v. Hollins.—This was an action of very considerable importance to the commercial community, inasmuch as it involved the decision of several points regarding the liability of one partner in a firm to debts or engagements contracted, under certain circumstances, by a co-partner, without the express consent of the former, and also other matters connected with partnerships.

Mr. Knowles, in stating the case to the jury, said, that the plaintiffs were Messrs. Boult and Addison, stock and share brokers, and the defendant was Mr. Francis Hollins, late of the firm of Booth and Hollins, cotton brokers, both of this town. The action was brought to recover an amount of a little more than 800*l.*, a balance claimed by the plaintiffs on a sum of money of within a trifle of 1000*l.* The whole amount was included in one item only, being the balance of the sum lent. Mr. Boult, of the one firm, and Mr. Booth, of the other, were on the most intimate and friendly terms, and between Boult and Booth alone should he be enabled to show how the transaction which gave rise to the action had taken place. The concurrent circumstances, however, would, he trusted, sufficiently show the liability of the defendant, the partner of Mr. Booth. In the month of October, 1839, Booth and Hollins, experienced some pecuniary difficulties; and after borrowing several sums from other parties, and having a bill to retire in London, Mr. Booth applied to his friend Mr. Boult for a loan of 1000*l.* That sum, was by direction of Mr. Boult to the cash-keeper of the firm to which he belonged, paid over to Mr. Booth, on the 18th October, 1839, as a matter of accommodation granted through the intimacy of the parties, and he trusted he should show, though not by direct evidence, that it was borrowed with the authority of the defendant, Mr. Hollins, Mr. Booth's partner. Boult and Booth were alone present when the agreement to lend it was come to. To the first application made for the loan, Boult demurred; but it would appear, from circumstances, that he had afterwards consulted Mr. Hollins on the subject, and that the latter had sanctioned the borrowing. The money, almost as soon as received, was paid into the Albion Bank, in Castle street, together with an additional 50*l.*, and it was placed in the bank books to the credit of "Booth and Hollins," for the purpose before stated. Boult and Co.'s cash-keeper, on that day, paid over to Mr. Booth precisely 1000*l.*, as directed by Boult—namely, 915*l.* in Bank of England notes, a bank post bill for 83*l.* 16*s.* 11*d.*, and one sovereign three shillings and a penny, making the sum of 1000*l.* The identical money was paid into the bank, with the exception of the minor item of 1*l.* 3*s.* 1*d.* (which Boult had forgotten to give to Booth, but had returned to the cash-keeper the same afternoon); and to this was added the additional 50*l.* from Booth and Hollins's own resources. As the bill to be retired was to be taken up by the latter firm, the defendant had, of course, the benefit of the money, as a partner; and as Booth had left the country, he was, consequently, liable to the balance sought, some amounts having since been received, making the difference between the sum lent and that now claimed, including interest thereon. The learned counsel then called a number of witnesses.

After the examination of several witnesses, the learned Judge summed up, laying down the law as to liabilities of parties in such cases. If Booth borrowed the money after the dissolution of partnership, without the express authority of his late partner, that partner was not liable.

The jury retired, and, after a short absence, gave, on their return, a verdict for the defendant.

RAILWAY SHARE JOBBING.

Barned and others v. Hamilton.—The plaintiffs in this action, which was tried before a special jury, were Messrs. Israel Barned, Lewis Moxley, Elias Joseph Moxley, and Charles Moxley, bankers, of Liverpool; the defendant Mr. J. J. Hamilton, merchant, also of Liverpool. The action was brought to recover from the defendant the sum of 1337*l.*, the loss sustained on the resale of 200 quarter shares in the Grand Junction Railway, which had been contracted for by him. The defendant pleaded that he had not promised as alleged; that the company did not make and create the new shares in manner alleged; that the plaintiffs did not offer to sell and deliver and cause the shares to be transferred; and that he (the defendant) was induced to enter into the agreement by fraud, &c.

Mr. William Reynolds, jun., sharebroker, proved that Mr. Lewis Moxley told him that he was at liberty either to buy at 33*l.* or sell their shares at 35*l.*; that he sold Mr. Read 100 shares at 35*l.*, and submitted to Mr. Moxley the offer to purchase 100 more at 34*l.* 10*s.*, which was agreed to. The shares were purchased for Mr. Hamilton, say 100 at 35*l.* and 100 at 34*l.* 10*s.*, amounting to 6975*l.* They were, after the tender, sold at an average of 28*l.* 13*s.* per share, amounting on the whole to 5637*l.* 5*s.*, exhibiting a difference of 1337*l.* 15*s.*

His Lordship put the case briefly to the jury, remarking slightly on the amount of damages that would probably meet the case according to the period when the jury thought the repudiation occurred.—The jury retired, and after an absence of about half an hour, returned into court, and delivered in a verdict for the plaintiff—damages, 1337*l.* 15*s.*

PROCEEDINGS OF PUBLIC COMPANIES.

ROCKS TIN MINING COMPANY.

A meeting of the proprietors of this company was held at the George and Vulture Tavern, on Wednesday, the 14th inst., but we were refused admittance, the chairman considering the company to be of such a private nature, that giving publicity to their proceedings was quite unnecessary.

SOUTH SHIELDS SHIPPING COMPANY.

A meeting of the shareholders in this company was held at the George and Vulture Tavern, Lombard-street, on Tuesday, the 13th inst., to receive a report from a committee appointed to inspect the affairs of the undertaking. On the chairman taking his seat, it was intimated to him that "reporters were present," when a discussion followed as to any gentlemen from the press being permitted to remain during the proceedings of the meeting. Some of the proprietors argued that the company would be benefitted by its affairs being made public; while others contended that they were a private company, with which the public had nothing to do.—The Chairman and one of the trustees felt confident that the reporters from the highly-respectable papers present would faithfully report the proceedings. It could not be supposed, as suggested by one shareholder, that they could in any way be biassed in the report they should make, and therefore no objection could be made to their attendance.—A motion was made, that "none but shareholders should be present at the meeting." To this an amendment was proposed, that "reporters be allowed to remain." The amendment was put and lost, there being for it 21, and against it 26. The main question was then proposed and carried.—The Chairman stated the result of the discussion to the reporters, and assured them that it was not out of the slightest disrespect to them that it had been decided that they were not to remain during the proceedings.

Hartlepool Central Railway.—A plan and preliminary prospectus of a new railway has just been published, the object of which is to open out to those coal-fields, now about to be worked in the eastern and southern parts of the county, a cheap and ready communication with Hartlepool, as well as to connect the collieries in the Auckland district by a direct railway communication with the same port. The line commences at the Bishop Auckland and Weardale Railway, near Bishop Auckland, and terminates on the Hartlepool Railway, at the two and a-half mile post from the Hartlepool Docks. The length of the line is eighteen and three-quarter miles. As it does not interfere with the privacy of the resident nobility and gentry, and is calculated to be of immense benefit to the coalowners and the public generally, there is no doubt of its complete success.

Plymouth and Exeter Railway.—Mr. Macneil (the engineer to the Commissioners of Woods and Forests) is employed to survey the respective lines between Plymouth and Exeter. He commenced his duties on Wednesday week, by investigating the line to the south, projected by Mr. Brunel, in 1836. The result of Mr. Macneil's examination will be laid before the shareholders, and it will then be determined what course, under all the circumstances, is to be adopted.

Taff Vale Railway.—This undertaking has been brought very near to completion. The entire main line from Cardiff to Merthyr will be opened on the 21st instant.

Sounding the Sea by Electro-Magnetism.—Electricity is daily extending its sphere of operations, and is becoming more and more extensively applicable to useful purposes. We have this week seen an ingenious apparatus contrived by Mr. Bain, the inventor of the electrical clock, for the purpose of taking soundings at sea by electro-magnetic power. At present great difficulty exists, when taking soundings in deep water, in ascertaining the exact time the weight strikes the ground. The object of Mr. Bain's contrivance is to obviate this difficulty, and he accomplishes it in the following manner:—To the bottom of the hammer of a bell is attached a piece of soft iron, which is placed opposite an electro-magnet; and it is so arranged that when the communication between the coils of wire round the magnet and galvanic battery is completed, the magnet attracts the iron and holds back the hammer. As soon as the connection is broken the magnetic power ceases, and the hammer, acted on by the spring, strikes upon the bell. This part of the apparatus is intended to remain on the deck of the vessel when the soundings are made. The insulated wires from the galvanic battery, properly protected from the action of water, serve for the cord to which the weight is to be attached. The manner in which the weight is fixed on, so as to complete or break the connection between the ends of the wires, is extremely simple and ingenious. When the pressure of the weight bears on the hook, the electrical current is interrupted, and the magnet keeps the hammer from the bell; but when the weight rests on the ground the connection is broken, the attraction of the magnet instantly ceases, and the hammer, being thus liberated, is forced against the bell by the spring. It would thus indicate with the utmost precision the moment the weight reaches the bottom of the sea.

MINING CORRESPONDENCE.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

April 12.—I beg to inform you that Hitchins's shaft is sunk to a depth of 92 fms. 4 ft. 6 in.; ground a little more favourable for sinking. In the 110 fathom level west the lode is still about eight inches wide, and producing good stones of copper ore. The lode in the 100 fathom level west is still a good course of ore, being 1 ft. 6 in. wide, and worth 14*l.* per fathom. The rise in the back of the eighty fathom level, against Hitchins's shaft, is still in moderate ground. In this level, east of Walls's shaft, the lode is two feet wide, and at present unproductive. The lode in the eastern stopes, in back of the eighty fathom level, is fifteen inches wide, and worth 18*l.* per fathom. The lode in the western stopes, in back of ditto, is still about twenty inches wide, and worth 32*l.* per fathom. In the seventy fathom level eastern stopes the lode is eighteen inches wide, and worth 27*l.* per fathom. The lode in the western stopes, in back of ditto, continues about eighteen inches wide, and worth 25*l.* per fathom. The cross-cut to Hitchins's shaft, at the sixty fathom level, and rise in back of ditto against Bray's shaft, are still going on with a favourable progress. The tribute pitches are still making good returns of copper ore. F. PHILLIPS.

GREAT WHEAL CHARLOTTE MINING COMPANY.

April 7.—I beg to hand you a report on this mine. The lode in the eighty-two fathom level west is from two to three feet wide, producing good stones of ore; in the same level east the lode is still poor. The stopes in the back of the seventy-two fathom level (near the winze last holed) have rather improved, and have been yielding about six tons of ore per fathom. We have this day recommenced driving the seventy-two fathom level, where we have a large lode, worth 25*l.* per fathom. The stopes in the back of the seventy-two fathom level, east and west of Luke's winze, are each yielding three tons of ore per fathom. Yesterday we sampled 113 tons of ore.
SAMPSON TREVETHAN.

WHEAL LEEDS MINING COMPANY.

April 3.—Eighty Fathom Level East—Lode twenty inches wide, with a branch of ore two inches wide on north part. Sixty Fathom Level East—No lode taken down. Stopes in back of ditto—No lode taken down; the ground in this end and stopes is very good; the men are working well. Winze in bottom of Sixty Fathom Level East—Ground very good; they will not take the lode down until it is communicated to the seventy fathom level. Though the fifty fathom level is looking kindly, I am obliged to suspend it for a short time, to sink a winze to ventilate the sixty east; there are at present twelve men in back and bottom of said level to stope. The winze is commenced in very good ground; the lode is nine inches wide, good ore. The water is rather troublesome, but I hope on Tuesday, when we take down the lode, the water will drain.

April 10.—Eighty Fathom Level East—No lode taken down. Sixty Fathom Level East—Lode one foot wide, producing one ton of ore per fathom; it does not look so well as it has, in consequence of a slide intersecting it; this has been the case before, but it very soon presented favourable appearances, in most cases in less than six feet. Stopes in back of Sixty Fathom Level—Lode sixteen inches wide, producing one ton and a half of ore per fathom. Winze in bottom of Fifty Fathom Level East—Lode ten inches wide, producing rather more than one ton of good ore per fathom. Though the lode in this winze looks very well, we are obliged to suspend it, the water being so much, and all rising from the bottom of the winze; these men will return to their former place, the fifty fathom level east, on south branch of lode. Cross-cut South, at Forty Fathom Level—Ground a little improved. The men are all working well. C. H. RICHARDS.

TRETOIL MINING COMPANY.

April 12.—The lode in the forty fathom level, west of the engine-shaft, is fifteen inches wide, tribute ground. The lode in the forty fathom level, east of engine-shaft, is one foot wide, tribute ground. The lode in the thirty fathom level, east of Williams's shaft, is one foot wide, tribute ground. The lode in the twenty fathom level, east of Williams's shaft, is nine inches wide, tribute ground. The lode in the rise, in the back of the ten fathom level, east of Williams's shaft, is fifteen inches wide, very good tribute ground. The part of the Mine Park lode we are driving on at the adit level, west of Johns's shaft, is one foot wide, producing spar, and a small quantity of ore. Tregellas's lode, at the same level, is one foot wide, unproductive.
H. WILLIAMS. J. MORCOM.

TRELEIGH CONSOLS MINING COMPANY.

April 10.—Since my last we have little or no alteration in the levels; the pitches also are much the same as they have been. At Good Fortune shaft we have not taken down the lode for the past week. The thirty four fathom level, on Shanger lode, is improving in its appearance. The twenty end is five feet wide, producing ore worth 5*l.* per fathom. W. SINCOCK.

WEST WHEAL JEWEL MINING ASSOCIATION.

April 12.—The fifty-seven fathom level east, on the south branch, is improved in size and appearance in the past week; the ground also is more favourable for driving. No lode taken down in the forty-two fathom level this week. The thirty west, on the south lode, is worth 6*l.* per fathom; and the winze sinking under the twenty is worth 7*l.* per fathom. No material alteration in any other part of the mine. S. LEAN.

REDMOOR CONSOLIDATED MINING COMPANY.

April 12.—We resumed working the north engine-shaft on the 7th inst., and are now about two fathoms below the fifty fathom level; ground not so easy for sinking as usual. The cross-cut south, at the fifty fathom level, is driven about three fathoms from the shaft; ground moderate. The Great South lode, at the forty fathom level going east, is about fifteen inches wide, producing a small portion of ore, with mundic and jack, but without any improvement in appearance since my last. At the thirty fathom level driving west the lode is about fifteen inches wide, yielding abundance of mundic and jack, with stones of yellow ore. Driving west from the winze at this level we find the lode to be about twenty inches wide, producing about 1½ ton of copper ore per fathom. We are also driving south at this level, on the lead lode, which appears much the same as last reported—viz., from eight to ten inches wide, making tribute. Hurl-down cross-cut, north of the shaft, is driven about nine fathoms; ground still favourable. I have noticed very little alteration in the tribute pitches during the past week, probably about the usual quantity of ore has been broken. We expect to sell in the present week about eight tons of silver-lead ore, and thirteen tons of copper ore. F. R. ROWE.

TAMAR SILVER-LEAD MINING COMPANY.

April 12.—In the 135 fathom level the lode is still large and intersected with silver-lead ores, but not rich. In the 125 fathom level the lode is one foot wide, producing a small quantity of ores. In the 115 fathom level the lode is about nine inches wide, producing some good work. At the 105 fathom level we are still cross-cutting west, and we expect to cut the lode soon. At the ninety five fathom level we have a large promising lode, from two to three feet wide, one foot of which is good work. In the winze, sinking from the seventy-five fathom level, the lode is about eighteen inches wide, producing some grey work. In the tribute department the men are working well, and the prospects of several of them are encouraging, particularly those at the 45 and 105 fathom levels. M. JAMES.

UNITED MILLS MINING COMPANY.

April 13.—Adit End East—Lode two feet wide, with stones of ore. Adit End West—Still driving south. Ten Fathom Level—Lode three feet wide, producing a small quantity of ore, with a promising appearance. Twenty Fathom Level—Lode eighteen inches wide—poor. Thirty Fathom Level—Lode 2 ft. 6 in. wide—1 ft. 6 in. on the north part good ore. Thirty-six Fathom Level—Lode 3 ft. 6 in. wide—1 ft. 6 in. ore of low quality. Forty Fathom Level—Lode four feet wide—two feet on the north part producing ore. Fifty Fathom Level, east of Williams's Shaft—Lode 2 ft. 6 in. wide, producing but little ore. West of ditto—Lode four feet wide—two feet good ore. East of Webber's Winze—Lode four feet wide—grey throughout. Sixty Fathom Level—In the eastern end of this level there has been no lode broken for the last week. Western End—Lode three feet wide—eighteen inches ore of a fair quality. W. PEARSON. C. PENROSE. N. LANGDON.

FOREIGN MINES.

Falmouth, April 13.—The *Penguin* packet, Lieut. Luce, arrived this evening with the Brazil mails; she sailed from Rio de Janeiro 26 March, and has brought about 23,000*l.* in gold-dust and diamonds, on freight, including about 11,000*l.* in gold-dust on account of the Imperial Brazilian Mining Company. Exchange 30, dull. Government 6 per Cent. Stock, 74 to 74½.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

Gold Report.—Feb. 1 to 10 (nine working days)—10 lbs. 3 oz. 19 dwt.—Total from 1st January to 10th Feb.—46 lbs. 17 dwt. 6 grs. About 9000*l.* gold dust has arrived by this packet.

Gongo Soco, Jan. 23.—It appears that the small produce obtained through the washing-houses during the last quarter has proceeded from Cumbe, from stone arches in the old workings in the fourteen fathom level, west of Hochedre's, and from the fifty five and sixty-two fathom levels. To the first and last of these places, which are new ground, a greater degree of interest and importance attaches than to the second, which has no importance in a general and prospective point of view, and no interest, therefore, beyond the mere amount of produce yielded. Our anxiety—our hopes—are fixed in depth in the east, in the extension of our workings west, and at Cumbe; this latter portion of our mining ground appears to hold out the most favourable prospects, as it has, in addition to yielding occasionally small portions of ore to the washing-house, produced, as the *Report* states, a very fine sample of gold in the course of the Cumbe vein, but which, on being followed, led to the old workings of the first owners of this mine; which workings, however, are not expected to have been continued to any depth. The Cumbe ground is, however, so soft and wet, that only piecemeal works of investigation can take place in that quarter, which must, as it were, at every moment be stopped, and other various expedients for exploring be resorted to, so that nothing conclusive or permanent can be obtained in point of knowledge and produce until the ground is drained, by the progress westward, of the thirty-four and forty eight fathom levels, which are being pushed with all possible speed in that direction. Our workings in the east have thrown no new and cheering light upon the nature of the jacotinga in depth, which the report describes as being very poor. The western ground also, and our works at Canta Gallo, have only presented appearances of gold, or rather the course of veins where gold might exist, and may appear from one moment to another. All these places have, besides, produced large quantities of jacotinga fit for the stamps; and this same result has been obtained from all the other parts of the mine where works of investigation have been carried on, and from, as usual, our stamping stone in our productive workings of former days, both of old and recent date. The stamps at Tabolcira having been idle from a breakage, now newly repairing, have not contributed their proper quota to our produce since the middle of last month, and have, to that extent, contributed to increase the poverty of our returns, which is now further aggravated in appearance by the circumstance reported in the mining captain's report to 20th inst., which offers no other new feature in the mining works to comment upon of an experiment, and, I hope, our last experiment in amalgamation—preventing the last ten days' produce from the stamps being cleaned and the amount thereof stated. This circumstance has, in part, rendered the making out of the gold return for the last ten days' useless, and, accordingly, none is sent with this letter, which will enclose a memorandum of produce through the washing-house, from the 11th inst. to this day inclusive. Another reason for the omission being, that our gold books are at Ouro-Preta, where Mr. R. S. Duval has taken them, to afford the proof required by the Minister of Finance, that the first payment of duty, at 10 per cent., made by the association, is levied on gold raised from and after the 1st July, 1840. The first payment will be made upon 276 lbs. 11oz., the produce from the 1st July to the 31st December, which left Gongo on the 10th inst., under the charge of Mr. Hammond, assisted by Captain Collins, and escorted by three miners—viz., R. Tuckfield, J. Goldsworthy, and G. Collins. The impression produced by the foregoing report of our investigations in various parts of the mine, and of the result, is, no doubt gloomy, but there is nothing hopeless or legitimately disheartening to mining eyes and mining nerves in the condition of the mining field before us, if not as to the present, at least as to a not distant future, which may, in the vast field in which it is to range, assume a settled favourable character, and yield produce commensurate therewith, as I expect to be able to show in my six-monthly recapitulation, which I hope to forward you soon.

Mining Captain's Report. G. V. DUVAL.

Feb. 10.—Since the date of our last report our works in the mine have pretty regularly been carried on, but the veins have continued very poor, producing gold only at the stamps; and on account of the regos having been broken away by the late heavy rains, and one of the millsers of the Eliza wheel having been broken, thirty of the stampheads were idle for several days, on which account the stamps produce for the last ten days will, of course, be much less than otherwise it would be.

N. HARRIS. T. BLARNEY.
H. PENGELLEY. V. VON HELMREICHEN.

BRAZILIAN COMPANY.

Cata Branca, Feb. 3.—The gold reports holding under the mark for so long a time will, I fear, have produced an unfavourable impression of the lode. The stone, unquestionably, is throughout poorer just now than usual, but I believe the eastern ground, of which we have, from an anxiety to prove the Olhos Major and Minor at a lower depth, had an unusually large proportion, has been the cause of our late bad returns—at least (and I have examined it minutely), the western ground looks of fully an average value; and, to prove whether it be so or not, I have now directed as much of it to be broken as can be until further orders, so we shall very soon see. The falling off in the eastern stone (from the gut, or even further—the east end of Mata me Embora), I hope, as I think, will be found only a temporary evil. I have before told you, that this lode, is common with others of its nature, on narrowing in, is invariably found of poorer quality, and it is of less width now than it ever has been in our time; however, whether temporary or otherwise, it renders necessary a different mode of working to that which I suggested to you, and was desirous of following out. I allude to making No. 8 the sump, and working the stopes from thence west, and I am truly glad to say, that the favourable nature of the cross-course west, to Harpur's lode, has made most plain what that other mode should be—namely, to put the engine-wheel in the cross-course itself, in such a position that it will not only command this and Harpur's lode (should it prove worth working) but those of San Antonio as well. It will be a very speedy job, and by going enough north for the downright (engine) shaft, so as to cut Cata Branca lode, say fifty or sixty fathoms under present bottoms, we shall not only have all our pumps out of the mine, thereby doing away with the many lets and hindrances from breakages by blasting, but, by keeping the sump some fifteen to twenty fathoms under bottoms, work every foot dry. In a post or two I hope to send you a tracing, showing present state of workings and intended alterations—they will, I consider, make this perfect. We shall, if Harpur's lode preserves the same underlie as Cata Branca, cut it next week; what it may prove, of course I can form no opinion, but, if worth extracting, nothing will be more easy, and we shall at once have forty fathoms of backs to take away. I have already observed, that the opening of the ground west more than makes up for the narrowing in east—that we have now a greater extent of ore ground (and where it has ever proved best too) than we have ever had. Various heavy works, placing stull, laying tramroad, &c., &c., have been got through with in the mine, but as as these have been regularly reported, as likewise those on surface, I feel it only necessary to point your attention to them, as detailed in the asset list.

Feb. 8.—Having addressed you so fully on the 9th instant, I have only to add, that appearances in the mine continue the same. W. COTTERSWORTH.

Gold return for six weeks to 12th February, 92 lbs. 8 oz. 4 dwts. 6 grs.—Ditto for the month of January, 70 lbs. 10 oz. 19 dwts. 18 grs.

ST. JOHN DEL REY MINING COMPANY.

Extracts from Mr. Herring's report.

Dec. 18.—The very dry weather which has prevailed of late, has induced us to try and sink a little in the Bahu, for one more stope, before the rearrangement of the pumps. In the Gamba we are also sinking for stopes, since there is only one stope in this mine in a length of forty fathoms. I propose to keep sinking this mine during the whole of this year, so as to establish six or seven stopes in it, and triple the quantity of ore from it if possible. There has been a full supply of ore from the mine. Six heads are kept at work from the Champion stopes, which at present are very poor.

Jan. 28.—Number of heads working during the twenty-eight days, 58.68.

Mines.—In the United Mines we have obtained one more stope from sinking, and also in the Gamba. The stamps call hard on the mines for stone, and it is with difficulty the mines manage to meet the calls. We are stamping every thing that comes—poor stone and kilns. The cost for December is 14,268 71*4* rs. You will observe a charge of 729 for horses for the whims, in consequence of the necessity I found for increasing their number at once. The cost for plank is always heavy, though not every month; more are brought for sale, and of a stronger kind, than could be obtained in any quantity some years back. Greater necessity for them exists, for the deepening of the mine demands a considerable number for staging, and the underlay shafts consume a great many for stulls; indeed, I have no hesitation in stating, that, for hauling stuff, this ought to be, and most probably is, the most expensive establishment in the country, and it will still continue so, whatever arrangements of machinery may be adopted. The greatest economy to be made now is by erecting a hauling machine, which will set many hands at liberty for the mine. The increase of produce we may look for will be by keeping the stopes in very good order, which a large extent of ground opened will enable us to do—so that, by breaking a great deal of stone, we may be enabled to reject the bad—supplying the stamps only with the good stone. The arrastres, in any number, are yet too far distant to expect any considerable increase of produce from them for this year.

Diary.—*Jan.* 31.—Nearly every stamp stopped for want of stone. Such a thing has not occurred before, I think, since Christmas, 1836; yet the mining captain says there is plenty of stone in the mine if the whim animals could only draw it up. We have had continued heavy rains for the last ten days.

Feb. 1.—Down the lower United Mines with Mr. Duval; the stopes are in worse condition than in December. The upper stopes that were jumbled so close on each other are all now in one. There are five good stopes—one one at Cricket's shaft, from which we cannot draw in consequence of the slide, for the kibbles not being quite ready; one of the junction of the Gualtra Panella, which I will not allow to be touched, it being the starting stope for bringing into good order the mine again, both above and below it; two stopes in the gut, or narrow part of the lode, and one just starting from the sump shaft.

Feb. 3.—Got forty-two heads to work; no prospect of getting any more to work for the week. Got the pass of the Herring stamps divided, that I may ascertain the advantage of spalling small. It is my impression that the difference of stamping out small spalled stone and common spalled stone is equal to 5 per cent.; and this difference, where stone is plentiful, is visibly of great importance to attend to. Mr. Smith estimates the stone stamped in January at 3030 tons. I must confess I do not think the estimate of those employed correct, as it appears to me over-estimated.

C. HERRING, *Jun.*

GOLD MINING IN NEW GRANADA.

[FROM A CORRESPONDENT.]

According to the official report of the Government of the Province of Antioquia, there are now actually working therein 360 mines, more or less productive. The mines above the Nuchilales, called Guaico, are producing 1400 dol. weekly; Frontino gives monthly 34 lbs., 6000 dol.; Musingo gave the first month 4000 dol.; and in Chaquinado there is an establishment just commencing, with great expectations. All that is wanted at Anori are scientific and practical men; when once this is obtained, the prosperity of the province will be considerably increased.

MINING NOTICES.

[Under this head we purpose collecting such paragraphs as may appear in the provincial and other Journals, having reference to discoveries and improvements in mining operations at home and abroad. It is hardly necessary to observe, that we must not be considered to admit the correctness of the information conveyed, which, in too many instances, requires cautious investigation—the sanguine expectations of parties in some instances, and the want of honesty in others, throwing a degree of responsibility on a Journal in giving publicity to reports, which we do not intend taking upon ourselves.]

COBALT MINE IN THE PYRENEES.—It is stated in the *Journal de Toulon*, of the 18th of Feb., that a rich Spaniard has just undertaken to recommence working the famous cobalt mine of St. Jean, in the Spanish valley of Gistam, on the frontier of the department of the Hautes-Pyrenées. This mine had been long worked by the Germans, on account of the grant which was made of it to them by Philip IV., King of Spain.

MINING IN SPAIN.—The *Correo Nacional* states, that on the 26th ult. two members of the Institute of France arrived at Carthagena, who were commissioned by M. Aguado and Co. to explore the mining district extending from Cabo de Palos to the Sierra de Gador. It was said that the company formed under the auspices of that wealthy capitalist would appropriate 25,000,000 francs (1,000,000*l.*) to the working of the mines of that country, if the report of the commissioners proved to be of a favourable nature.

MINE ACCIDENTS.

Dreadful Catastrophe at Dowlais—Five Lives Lost.—We have this week the painful duty to record the loss of five lives at the Old Iron Works, Dowlais. The nature of the accident is as follows:—A number of masons and labourers were employed to repair the inner wall of one of the furnaces, which had become much inwant of repairs; accordingly the wall was pierced, and a scaffolding risen above the men to preserve them from danger in case of any of the stones giving way. About three o'clock, on Tuesday evening, a signal was given that some of the stones above were falling; some of the persons employed immediately escaped, and instantly a mass of stones and earth, weighing about eighty or ninety tons, fell upon the scaffolding, broke it to pieces, and buried eight men in its ruins—six others were at work on another scaffold, but escaped with some slight injuries. Mr. John Evans, one of the managers, had also, we believe, but a very narrow escape for his life, being on one of the scaffolds at the time. As soon as it was possible, the persons near the spot began to clear away the ruins; and it was six o'clock before the first man, of the name of David Jones, was dug out; this man was buried up to his neck, and had it not been for some timber that protected his head, his life would also have been lost. About seven o'clock, another person of the name of William Price was extricated, his injuries are indeed very great; and, in about another hour, one of the name of John Jones, was dug out. After this last person was liberated, all hopes of extricating the others alive were given over, and indeed these opinions were verified. About three o'clock on Wednesday morning, after hard labour, another of the sufferers was reached, but was found to be dead; about five o'clock two more were dug out, and the remaining two were extricated about eight o'clock, all dead. The wounded persons were immediately taken to their respective homes, and the dead were conveyed to the Owain Glyndwr Tavern, where a coroner's inquest was held on Thursday morning. From the evidence, it appeared that every usual precaution had been taken, and no actual blame attaches to any one in this instance; but, as the coroner justly observed, every possible care ought to be had of the lives of men so industrious and so courageous and useful to the country; a better system of propping up dilapidated works might be devised by skilful engineers, could they be induced to give the subject a scientific consideration. Perhaps an arched scaffolding, well filled up, and easily removeable, by projecting wedges over the large timbers, may be found useful in future. Verdict, "Accidental Death."

Dowlais.—An inquest was held at the Owain Glyndwr, Dowlais, on the body of Evan Edwards, who was killed in a level on the Friday previous, by the accidental falling of the superincumbent earth.—On Monday morning, as two labourers, named J. Jones and David Lewis, were at work in a level at Dowlais, a large mass of earth gave way and fell upon them, burying them in such a manner that they could not be dug out until midnight, although the accident happened at nine o'clock in the morning; they were both severely injured, particularly Jones.

Dukinfield Colliery.—On Friday week an inquest was held at the Cotton Tree, Newton, on view of the body of James Ogden, whose death was caused by an explosion of fire-damp. On the previous Monday, deceased and three others went to work in the mine of the Dukinfield Coal Company, at Dukinfield, when an explosion of fire-damp took place, by which they were all shockingly burnt. Deceased died from the effects on the following Thursday; and Samuel Andrew and James Rowly, two of the other men, still lie without any hopes of recovery. From the inquiry of the coroner, it appeared the colliers were provided with safety lamps, but preferred to work by light of candles.

Holytown.—On Thursday last an accident, which terminated fatally, occurred in one of the coal pits in Holytown; the unfortunate sufferer, a hard-working man, named W. Hamilton, who, while engaged at his employment, was struck upon the head by a very heavy piece of coal falling from the roof of the pit, by which his skull was severely fractured, and a portion of a cotton napkin which was upon his head at the time knocked into the wound. The sufferer was removed during the day to the Glasgow Royal Infirmary, but we regret to state that, notwithstanding everything that could be done, he expired on Sunday morning.

IRON TRADE.—The Ironmasters' quarterly meeting was held in Wolverhampton on Wednesday, at Walsall the previous day, and at Birmingham on Thursday. There is no advance in iron, and we have not heard of any nominal reduction of price, but our accounts state the trade to be very flat and its aspect gloomy. Great complaints are excited by the fact that several factors refused to pay on Wednesday, alleging, without the slightest pretext, that next Wednesday had seemed to them the proper quarter-day. This circumstance is the more discreditable, from the fact that most of the houses in question had subscribed to the regulation by which Wednesday last became the proper quarter-day. Such shuffling conduct is productive of great inconvenience to the Birmingham manufacturers, and also to those houses which pay on the proper day. The former are compelled to make two journeys, or, in case of making one only, and that on the latest day, cause the latter to hold two pay-days.—*Stafford Examiner.*

FLAT IRON WIRE ROPES.—Round iron wire ropes have, for upwards of two years, been successfully used in the collieries on the continent. Another improvement in these ropes has been made, which will render them still more useful. M. Louis Gienes, manufacturer at Termonde, in Belgium, has obtained a patent for flat iron wire ropes. This cordage, which resembles in a great degree flat hempen ropes, possesses extraordinary strength. When properly applied it will last twice or three times as long as the ropes in present use, and yet the new rope costs a fifth less. Independently of these advantages the flat iron wire cord is more flexible, less bulky, and a great deal lighter than the ropes now used. The latter fact deserves the serious attention of mine proprietors especially, for a great quantity of power is now unprofitably employed in deep shafts in bringing up the weight of the rope alone. The first of these flat iron ropes, manufactured by M. Gienes, were applied by Messrs. Picard, Devignon, and Co., proprietors of the coal mine of La Bonne Fortune, near Aux, where they are now working, and give great satisfaction. Those gentlemen were the first mine proprietors who employed the round iron wire rope.—*Inventors' Advocate.*

GOLD IN RUSSIA.—The St. Petersburgh journals state that the quantity of gold obtained during last year, by private companies, in Siberia and the steppes of the Kirgis, amount to upwards of 9000 lbs. net.

COAL MINES AT CONDRUSSO.—A royal decree of the King of the Belgians, of the 24th ult., authorises the formation of a railroad to the coal mines at Condrusso, for the purpose of facilitating the conveyance of coal from those mines by the canal of Charleroi to Brussels. The permission to form this railway is given to the company to whom the collieries of Bonne-esne-Fosse belong, but it is not to be exclusively devoted to their service. Any other company desiring to make use of the railway may do so on paying a reasonable toll.

DEVON STEAMING COMPANY.—At the annual meeting of the South Devon Shipping Company a dividend of 14 per cent. was declared, and an addition to the reserved fund made.

ANDREW SMITH'S PATENT WIRE ROPES, for standing rigging, lightning conductors, stropping of blocks, mining, railway, and general purposes; about half the size and weight of hempen ropes, and 25 per cent. cheaper. Testimonials to that effect, with specimens, may be seen, and every information obtained, at the office, 74, Old Broad-street, city; 69, Princes-street, Leicester-square; manufactory, Mill-wall, Poplar; and also of the following agents:—

Fox, Hawkins, and Hickling, New-street .. Birmingham.
Robertson and Co., 12, Govee Piazzas .. .. Liverpool.
Matthias Dunn .. .. Newcastle-on-Tyne.
Joseph Bothway .. .. Plymouth.
John Thompson and Co.. .. Wigan.
J. T. Tregellas .. .. Truro.
Thomas Mooney and Son .. .. Dublin.
Coates and Young .. .. Belfast.
James Kibble and Co. .. .. Glasgow.
James Gunn .. .. Leith.

This rope has been in use for standing rigging in her Majesty's Navy, and in a great number of merchants' ships, for upwards of five years, and is giving the highest satisfaction; the rope is also employed in various mines and railways in different parts of the kingdom, but reference is especially made to the Blackwall Railroad, where its capabilities have been most severely tested, for although it has been in use upwards of eight months, and has travelled a distance nearly equal to the circumference of the earth, it is, to all appearance, as good as when first applied.

NOTICES TO CORRESPONDENTS.

Pigeon or Metals—"W. Parsons, Swansea."—Anything under 3-16ths common sheet iron will do, although, of course, not so well as better qualities; above 3-16ths the iron must be of better quality, and varies from 1*l.* to 4 *s.* extra per ton—besides which, charcoal iron is sometimes used, at even 6 *s.* extra. If called on to quote prices above 3-16ths, we should say—common boilers, 10*s.* extra; best, 20*s.*; best best scrap, at 40*s.* extra; and charcoal, 80*s.*

Chance Price.—In reply to "M. E.," we believe the cause will come on for trial within a fortnight.

Revenny Iron Company.—The meeting of this company did not take place, as contemplated by us, the intimation of which was furnished by a correspondent, for none can be acquired at the office. We regret that several correspondents should have been subjected to the inconvenience complained of, but we are really not to blame. Why are not the directors more open?

The letter with reference to "T. L. M." and the *National* we must decline inserting, pending the parliamentary inquiry into joint-stock companies.

"J. C. R."—Absence from town has precluded us from directing our attention to the Sunday dispatches—they shall, however, meet notice next week.

Zinc, although at a premium, may be said to be at a discount. Our foreign correspondent will understand this.

"Swan C."—We hope to find leisure early in the ensuing week.

"M. A." will be glad to hear from Do Ra.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, APRIL 17, 1841.

The appointment of a committee, at the instance of Government, to inquire into joint-stock companies, is a subject which assumes an importance in more than one point of view. We here find a Parliamentary inquiry instituted to investigate private adventures, and which, but for the flagrant acts committed by parties of high standing and presumed respectability, would certainly meet with opposition on our part; but, with the knowledge we possess of the numerous instances of fraud practised on the public, we do consider that it behoves Government to see that the Acts of Parliament at present in force, with reference to joint-stock companies, are sufficiently comprehensive and protective of the public interests, and, so far as may be found expedient, to make the necessary amendments or alterations.

That some alteration is essentially necessary must be admitted, as evidenced in the West Cork and the Talacre Companies, which would never have been projected, but from the absence of any real protection being afforded to the public; nor would the West Middlesex Assurance Company, the British and Australasian Bank, or several others, which have brought ruin on the shareholders, and ignominy on the projectors, ever have seen light. Another instance has this week been brought forward, in the abortive attempt to form a Staffordshire Coal Company, about which much was said at the time. In this case, we find the names of directors were put forward who totally disclaim ever having had any connection with the company, but one of whom admits that he was aware his name was introduced into the prospectus. We would ask this gentleman (Mr. Maclean), whether it would not have been the proper course to pursue, had he insisted on all prospectuses in which his name appeared being destroyed, and, moreover, that through the public press he had announced his name having been improperly used, and that he was in no way connected with the company.

There is nothing but a most rigid inquiry, we feel assured, that will effect the object sought by the appointment of a committee, and we trust it will not be confined to any one description of companies, but embrace Mining, Banking, Railway, Fire and Life Assurance, Gas, Water works, Emigration, and, indeed, all other undertakings where capital is raised by the subscriptions of the public, on the faith of representations made by prospectuses and reports. In the instance of the Imperial Brazilian Mining Association, referred to by a correspondent, it appears that the board of directors refuse to comply with the spirit of the Deed of Settlement, of rendering to a shareholder a list of his co-partners; this is one abuse which requires correction. Is it to be said, that a board of directors, who are well paid for attending to the duties of their office, shall tell to the body of shareholders, or any requisitionists who may be desirous of convening a public meeting, that they shall not have the opportunity of communicating with those who have embarked with them in the undertaking? We are not advocates for the books being thrown open, and the respective interest held by each proprietor being made known, but we think no solid objection can exist to a list of the shareholders being furnished, as, otherwise, the proprietors are not on an equal footing with the directors.

The annual election of directors may possibly have an influence in this respect, although it should have none, for it is matter of notoriety, that, in the elections at the East India house and the Bank of England, the names of the proprietors are known to the candidates, so that they may not only personally canvass them, but use any influence they may possess; the same course is also observed in all public institutions. Let, then, equal publicity be given to the names of the shareholders in mining, banking, insurance, and, indeed, all joint-stock companies. This in itself would be an important point gained by the proposed inquiry.

In the next place, we would inflict a heavy penalty on directors who should declare any dividend out of the capital of the company, and this would at once put an end to the highly reprehensible clauses which we find introduced in the prospectuses of several companies—viz., that a dividend, after the rate of 4 or 5 per cent. on the capital advanced, will be paid to the shareholders until the works shall be in profitable operation. Hence, the dividends so paid must be abstracted from the capital of the company; or, in other words, giving to the subscriber of 100*l.*, as one year's interest, 5*l.*, which virtually reduces his capital to 95*l.*—inasmuch, that one-twentieth is withdrawn under the fallacious term of interest. The appointment of trustees, in whom should be vested the capital of the company, and who should be responsible for the accuracy of the accounts on which dividends should be declared (thus acting in the twofold capacity of trustees and auditors), appears to us to be the only check on this misappropriation of the funds of the company—such trustees being remunerated for the responsibility and onerous duties of their office, and entitled to professional aid, in the employment of accountants when found necessary.

Another point to which we consider much loss is to be attributed in the carrying out of joint-stock adventures, and to which the attention of the committee should be directed, is the failure, in the first instance, of raising a sufficient capital—or, in other words, getting the shares subscribed for to an adequate extent. If our recollection serves us, out of the 20,000 shares into which the capital of the London and Greenwich Railway Company was divided, not more than some 400 or 500 were actually taken up when the first instalment was paid, but, by dint of application and *assurance* (indeed, we hardly know what term to apply), in the end, all the shares were meted out—in many instances, to our knowledge, at 6*l.* and 7*l.* per share premium, when not three-fifths of the shares of which the company was constituted had been issued. Several mining and assurance, as well as banking companies, in like manner, set out with a nominal capital—divided into a certain number of shares, on which a deposit is required, and further instalments, by way of cails, as the capital might be usefully employed. Let us suppose a company, with a capital of 100,000*l.*, divided into 5000 shares of 20*l.* each, with a deposit of 2*l.* per share, and an early call of 1*l.*—this would make a paid-up capital (to all appearance) of 15,000*l.*; and we will further assume, for the sake of argument, that the contemplated outlay was 25,000*l.*—three-fifths of the necessary amount would, therefore, in the opinion of the shareholders (ignorant of the moves behind the curtain), have been subscribed—but let us take the facts. Out of the 5000 shares into which the company is divided, only 1000 are subscribed for; and hence the responsibility of the shareholder is increased fivefold, while it, unfortunately, proves, on the production of the accounts at the first meeting, that instead of 15,000*l.*, or three-fifths of the capital having been subscribed, the entire amount is 3000*l.* only—thus leaving a deficit of 22*l.* per share on the paid-up shares of the company to make up the capital required, instead of 2*l.* per share, which the shareholder had a right to calculate upon, according to the terms of the prospectus; and, supposing the whole of the nominal capital to be necessary for the prosecution of the operations of the company, he would be called upon for 100*l.* for every 20*l.*, which he supposed himself to be a subscriber for, at the time of taking up the shares.

These are a few among the many instances which present themselves, where the interference of some parliamentary measure is necessary for the protection of the public. All prospectuses we would have duly registered, of which a certificate should be signed by some public officer, and be duly gazetted; the signatures of the several directors should be affixed to the prospectus so deposited, who should be held responsible for the accuracy of the representations made therein. The secretary should be the officer or servant of the body of proprietors, and not of the directors—the latter being merely the executive body, to see that the duties devolving on the several officers or agents of the company are performed with fidelity and care, and whose duty it should be to afford to the shareholders every facility of acquiring information. We would, further, have the reports submitted at public meeting with the accounts, registered in like manner, in a public office, where they might be consulted on payment of a trifling fee; by which means the purchaser of a share in any undertaking would have the opportunity at all times of reviewing the accounts of the company, and their prospects, as represented in the reports from time to time registered. We will not add more on the present occasion, for the subject admits of more consideration than can possibly be devoted to it in a single Number—but cannot conclude, without directing attention to an able letter from Mr. R. Cort, "author of the pamphlets" on the British Iron Company, in which the necessity of some measures being adopted hereafter, which shall preclude the ill effects arising from the "silent system" and secret understanding in the projection of companies, and in the carrying of them out, is too manifest to require comment.

We are glad to find, from the letter of a correspondent, that the question of the employment of slaves in working mines in Brazil will be mooted at the meeting of the shareholders of the Imperial Brazilian Company, on the 15th proximo, when it behoves every proprietor to be present, and to vote according to the dictates of humanity. The question is one which partakes of a national character, reflecting, as it does, upon the British nation in privately upholding a system which it publicly repudiates, and in filling the one pocket with the gold, the produce of the slave, while from the other it contributes 20,000,000*l.* for his emancipation. Vessels are equipped for ploughing the seas, with the view to put down slave trading, and yet companies exist in this metropolis—the dividends afforded by which are the produce of the labour of the slave—the bought human being, who, when the operations of the company are no longer profitable, is to be sold to the best bidder, and thus turned over like cattle to do the bidding of his owner. We doubt not but that the apologist for slave labour will base his argument in favour of the employment of slaves, by stating that, without this description of labour being availed of, the mines could not be worked to a profit—that the returns of the company would not pay 2000*l.* or 3000*l.* a year to the manager in Brazil, or 500*l.* to 800*l.* a year to the sub-agents, or, moreover, the salaries of directors in London—much less, dividends to the shareholders; and this is the only argument he can adduce which can lull his conscience into transitory repose, or smother the feelings of humanity which must rise in the breast of every thinking and reflecting man. The produce of the mines of Cuba and Brazil have yielded large returns to the *philanthropic* shareholders—they have been earned by the slave, at the cost of the free man—in other words, the employment of the slaves of Cuba have taken from the Cornish miner the means of subsistence—the influx of foreign ores has affected our standard—the successful working of the mines has attracted the attention of the capitalist (no less than 480,000*l.* having been given for the Cobre Mines alone)—and when the English miner seeks labour in the clime to which capital is directed (from its natural channels, in our home mineral districts), he finds the free miner is there supplanted by the slave, and, should he get employment, the chances of life being preserved, from the nature of the climate, are such as to render him anxious to return to his native land.

The question, however, in the present instance, is, whether emancipation can be granted to the slaves employed by the Imperial Brazilian Mining Association—some 300 or 400 in number—and, at the same time, the mines be worked with profit. We confess, we have our doubts on this point, as the slave, once freed, would, in a great measure, be independent of the company, and his labour could not be *enforced*; again, the extra charge which the company might sustain in employing free instead of slave labour, leads us to suppose that they could not work to a profit, if the present system were abolished. The next question which naturally arises is, what course, under such circumstances, should be pursued? Will the company continue slave labour, or will they be content to lose their *stock*—that is, the value of them (which, if we assume 40*l.* a piece, for we are not dealers in human flesh, and, therefore, know not the *intrinsic* value, would amount to 16,000*l.*), and then abandon the mines, subjected, as they must, in such case, be, to the heavy expenses attendant on the transport of the English colony home, payment of salaries under agreements for term of years, and the consequent expenses on winding up so heavy an establishment—indeed, it is hard to say what they will do, or what to recommend. We shall await the proceedings of the meeting with much interest and anxiety, and hope to find, that the attention of the shareholders will, in the interim, have been devoted to the important subject, and the consequences attendant, which will then come under their consideration.

JOINT-STOCK COMPANIES.

We extract the following *resumé* of joint-stock companies from the columns of the *Times* of yesterday, the correspondent furnishing which having, without the slightest acknowledgment, abstracted, not only the tabular matter having reference to companies formed in 1824 and 1825, and antecedent to that period, from a pamphlet published by *us* fourteen years' since, but actually adopted the very words which accompanied those statements. As the information furnished was acquired at a sacrifice of much time and trouble, we are not willing to allow the jackdaw to retain his borrowed plumes. As far as the data which refers to 1824 and 1825, *we* can vouch for its accuracy; not so the capital since raised, and how applied, in which the correspondent of the *Times* appears to us to be sorely in error. In the first place he assumes 800,000,000*l.* as the total capital of schemes projected; from this amount he deducts 60,000,000*l.* for railroads, and 20,000,000*l.* for other undertakings, or in all 80,000,000*l.*, which, by his mode of calculation, leaves 700,000,000*l.* instead of 720,000,000*l.* That he is wrong as regards the 20,000,000*l.*, which he appropriates to undertakings generally, exclusive of railways, will be manifest, if we refer alone to the joint-stock banking companies, which interest alone is represented by a far greater amount of capital—not to advert to insurance, emigration, and other companies.

Mr. Labouchere having moved for, and a select committe appointed by the House of Commons to inquire into the abuses and law relating to joint-stock companies, I beg to call your attention to the fact, that previous to the year 1824 there were 156 companies projected, all of which have been carried into execution, and are now in existence, and that the profits arising from the undertakings yield in most instances a rate of interest greatly exceeding that obtained by any other mode of investment, and may be classed thus:—

Companies.	Capital.	No. of shares.
63 Canal	£12,202,096 0 0	175,374
7 Docks	6,164,590 12 6	57,884
23 Insurance	20,488,948 0 0	329,841
16 Water-works	2,971,170 0 0	39,760
4 Bridges	2,452,017 2 8	31,731
27 Gas	1,630,700 0 0	35,194
7 Roads	494,964 18 10	7,472
7 Miscellaneous	1,530,000 0 0	17,580
156	£47,936,486 13 6	764,334

But how different the circumstances attending the companies of 1824 and 1825. A majority of them were of a nature adapted only to individual enterprise, as by the formation of a company many useless offices were made and expenses entered into which prevented the possibility of any return to the unfortunate shareholder. The capital required was of such a trivial nature in many instances as to render the formation of a company, a measure only to be attributed to some sinister motive of the projector, and that, coupled with the fact that out of 624 companies, requiring capital of 372,173,100*l.*, formed in London in the years 1824 and 1825, not twenty of them are in existence at the present time, and it would have been well for the poor dupes in those undertakings had they never existed, or that the lives of the mad-brain schemes had been of shorter duration.

The bubbles brought forward in those years consisted of:—

Companies.	Capital.	No. of shares.
74 Mining	£ 38,370,000	557,200
29 Gas	12,077,000	210,940
20 Insurance	35,820,000	651,960
28 Investment	37,600,000	626,500
54 Canal Railroad	44,081,000	542,210
67 Steam	8,555,500	125,720
11 Trading	10,450,000	85,000
26 Building	13,781,000	164,900
23 Provision	8,360,0 0	674,490
292 Miscellaneous	148,169,600	2,294,350
624	£372,173,100	5,983,220

Among which will be found Anglo-Chilian, Anglo-Mexican, Anglo-Peruvian, Brazilian, Imperial Brazilian, Bolanos, Bolivar, Chilian, Colombian, Chilian and Peruvian, Castello, Famatina, Guanaxuato, General South American, Gold Coast, Haytian, Mexican, Paso Peruvian, Potosi la Paz, Peruvian, Real del Monte, Rio de la Plata, Royal Waldeck, Tlalpoxahua, United Mexican, United Pacific, United Provinces, United Chilian, Vigo Bay, Brazilian Jewel, Alderney Dairy, Tobacco and Snuff, Ale, Metropolitan Fish, Drug, Carpet, General Dyeing, Egyptian Trading, Anglo-Russian, Bengal Sugar, Borneo Loo Loo, Isthmus of Darien, African, Cornwall and Devon, Manganese, Royal Irish, English Gwenappe, Tywarnhale, and others too numerous to mention.

From the year 1824 up to the present time companies have been brought before the public requiring a nominal capital of nearly 800,000,000*l.*, out of which not more than 80,000,000*l.* have been *bond fide* laid out, which may be roughly stated—viz., 60,000,000*l.* in railroads, and the other 20,000,000*l.* in docks, bridges, and canals, leaving about 700,000,000*l.* for fictitious and gambling speculations.

In the greater number of instances it will be found that the projector was either an attorney or parliamentary agent, who, by the concoction of a scheme, availed himself of the advantage which it afforded by a bill of costs; or some unprincipled person, actuated solely with a view to pecuniary profit, and to obtain which the measures adopted were in such cases neither justifiable nor honourable; the deceptive practices resorted to to obtain a price far exceeding the real value of the property can only be explained by the guilty participation of the parties in the spoil; while in other instances, by imposing on the proprietors of the company by nominating a false sum as the purchase-money, and by withholding the greater part of the shares, and disposing of them at considerable premiums, the parties secured to themselves a fortune at the public expense. These premiums were obtained by an artificial value being created by manœuvres, and by the aid of individuals who, for the sake of a commission, lent themselves to the fraud so committed.

To acts of a similar nature to those referred to, is to be attached not only the loss of property, but the sacrifice of character, which has, in too many instances of late, been the result of the proceedings of joint-stock companies, where, by the connection of men of title with designing projectors, the innocent have been implicated with the guilty. It is, however, to be hoped that the lesson thus taught the public will be the means of preventing a recurrence of these events, and that the proprietor of a base scheme will be shunned and stigmatised, while the patron and promoter of objects conducive to national wealth and the public good will be held in that high estimation of the public which it is their duty to bestow, and of the possession of which it is his pride to boast.

It may be said, how is this to be prevented? Why, very easily. Compel the directors of companies to have a certificate from the Board of Trade certifying as to the respectability of the parties, and the practicability of the plan, and a list of their names and residences registered at the Stamp-office as responsible to the public as well as the shareholders, before they are allowed to bring the scheme forward for public support. You will then hear very seldom of fraudulent companies.

STOPPAGE OF A BANK AT WALSALL.

Birmingham, Friday evening, April 16.

"I regret to state that the bank of Messrs. Barber and Marshall, of Walsall, closed this morning, or rather the house failed to open this morning. The inhabitants of the borough, in consequence of this untoward event, combined with the late stoppage of the South Staffordshire Bank, are placed in very unpleasant circumstances. The late failure is attributed to the embarrassments of a son of one of the members of the firm, lately carrying on business in Liverpool. It ought to be stated, that the bank of Messrs. Barber and Co. was more a bank of deposit than of commerce."

The "Patriot."—The continued absence of any information as respects the safety of the *President*, now so long overdue, has created a greater sensation throughout the country than any occurrence of a like nature for many years. The anxiety which is expressed on the arrival of the mail in provincial towns, and the repeated inquiries, through the best channels, in the metropolis, evidence the strong feeling and interest which exists on this subject, while apprehensions are entertained in some quarters of any tidings coming to hand of a satisfactory nature, as no doubt the most strenuous exertions would have been made to communicate her safety. Still, we cling to the hope, that we may have the gratification of announcing in our next her safe arrival, with her full list of passengers restored to the homes of their respective families.

ORIGINAL CORRESPONDENCE.

WET ASSAY OF COPPER—CORRECTION BY THE BLOWPIPE.

TO THE EDITOR OF THE MINING JOURNAL.

LETTER II.

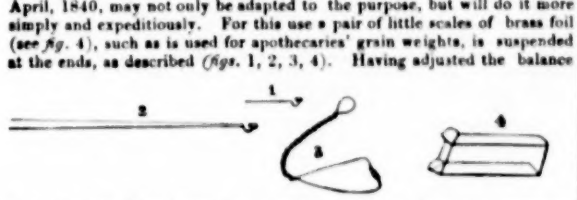
SIR,—Before entering on the blowpipe process, it may not be amiss to premise that the wet assay operations may be performed without a furnace-sand heat; the *solution* in a Florence flask, over a lamp; the *evaporation* also in a flask, cut down so as to leave about three-fourths of its body,* and set in a sand bath, in a copper scale basin, or even a tin-plate pattepan, of a single piece, also over the lamp; and the *precipitation* in an olive bottle (pint size), set in a vessel of water, kept hot over the lamp or by the fire. A metal lamp stand being injured by the acid fumes, the stone ware one, introduced by Mr. Griffin, of Glasgow, and sold by Ward, 79, Bishopsgate-street-within, London, is convenient; or a common garden-pot, the stem of the lamp set in the hole at the bottom, and the flask, or, sand bath, supported on a wire triangle on the top, answers the purpose very well.

My last was concluded with stating that the excess of produce in the wet assay, by oxidation in drying, or by foreign substances difficult to wash off, may be corrected by melting out the copper with black flux, in a crucible, or stopped tobacco pipe, or more conveniently by the blowpipe, according to Plattner's method. Those who know anything of copper assaying will require no instruction for fusion in the crucible; but the blowpipe method, requiring no fire but that of a lamp, and occupying ten to fifteen minutes, according to the skill of the operator, requires and merits some detail.

The general scheme of the process is this:—Having weighed the dry produce, and mixed it uniformly, an exact quantity (say two grains) is to be weighed out, mixed with about three grains of dry carbonate of soda, and as much borax, packed in soda paper, the little packet fitted into a hole bored in charcoal, and heated in the reducing flame till the oxide is entirely reduced, and the copper run into a clear globule under the slag. It is then allowed to cool, folded in a bit of paper, and struck two or three blows with a hammer to break off the slag. The copper globule being then weighed again, gives the proportion in the two grains, whence the true produce may be reckoned by simple proportion.† This miniature mode has another advantage over the fusion in the crucible—that even a small quantity of precipitate allows of several fusions, either to confirm doubtful results or to remedy accidents.

In the detail we have to consider—1, the minute weighing; 2, the fluxes and mixing; 3, the soda paper; 4, the packing; 5, the charcoal boring; and, further, a correction of the result, for want of practice or of skill in the operator.

1. *The Minute Weighing.*—Plattner recommends a fine beam and scales, turning to 1-1000th grain; but such a beam is costly in this country. The reed beam, described in the *Mining Review*, No. 28, for April, 1840, may not only be adapted to the purpose, but will do it more simply and expeditiously. For this use a pair of little scales of brass foil (see *fig.* 4), such as is used for apothecaries' grain weights, is suspended at the ends, as described (*figs.* 1, 2, 3, 4). Having adjusted the balance



by a little bit of bent brass wire, moved towards or from the centre on the lighter side, a brass bead is to be placed on No. 100, and exactly counterpoised with the assay in the opposite scale; call this an assay 100. A little end of wire is cemented upright through the No. 100, to take the bore of the bead, and ensure its exact place—the bead weighs two grains.‡ Having thus weighed out our assay 100, the operation is to be performed, and the resulting copper globule replaced on the same scale, the bead being moved towards the centre of the beam until the equipoise is restored. Suppose this to be at 88—that is, 88 per cent. fine copper—and in the twelve grains precipitate (*see* †), $,88 \times 12 = 10{,}56$ grains, corrected produce.

2. *The Fluxes and Mixing.*—The "carbonate of soda" used for effervescing powders, and good clear borax, as sold at the druggists', answer very well—they do not require such precise weighing; a three-grain weight may be put in one scale, and the flux weighed in the other, but they must be carefully mixed with the assay, which may be done in a little porcelain cup, or gallipot, 1¼ inch wide and ¾ inch deep (or thereabout), with a bit of glass rod, rounded at the end, by way of pestle.

3. *Soda Paper.*—The use of this is to prevent the assay powder from blowing off by the first action of the flame; it leaves, in burning, a crust of soda, which holds together the materials until agglunited by the fusion of the borax. It is prepared by dissolving ½ oz. of crystallised carbonate of soda (often called "subcarbonate") in 1 oz. of water, putting it in a saucer, and passing through the solution slips of thin writing or printing paper, about 1½ inch wide; these slips are then hung up to dry slowly. For use they are cut into inch lengths, and made into cylindrical cups, by rolling round a wooden cylinder, about $\frac{1}{10}$ inch diameter (as the end of a black-lead pencil of that size), letting the paper project about 1 inch diameter beyond the wood, for closing the end to form the bottom. This is done by folding in the turns one upon the other, and flattening them down by pressure upon the table; now drawing out the wood, we have a little empty cartridge, with a flat bottom (*fig.* 5.)

4. *Packing the Mixed Assay.*—The scales (*fig.* 4) are, as above said, of brass foil, cut 1 inch square, and turned up ¼ inch, on three sides; where brass foil cannot be procured, very thin tin-plate may be used, or even a couple of apothecaries' six-grain weights. To suspend them, a couple of the smallest common pins (about ¼ inch long, and fine in proportion) are bent twice near the head, as in *fig.* 1, and cemented into the ends of the beam, as in *fig.* 2, so as to leave only the little hook projecting, from which hangs the little triangle of brass-wire (*fig.* 3), and carries the scale. This is made by doubling a length of brass-wire, leaving a loop at the bend, and twisting together, to give stiffness, for about an inch; then turning the ends to an equilateral triangle, about ¾ inch on the side, and uniting them by twisting together where they join. The loop hangs on the pin, and the scale rests on the triangle, being put on and off with the tin forceps, without disturbing the beam. It is convenient to put a couple of props near the ends to prevent the beam having above ¼ inch play. The charging of these little cartridges with the mixed assay and fluxes requires care. It is performed by means of a little capsule, with long spout, beaten out of brass foil, and well planished inside. The capsule may be 1¼ inch diameter and ¼ inch deep, the spout 1 inch long and $\frac{1}{10}$ inch wide (*see figs.* 6 and 7.)

The mixture being turned (with aid of a camel's hair brush) clean into the capsule, this is taken up in the left hand, and the cartridge in the right. The spout being then introduced ¼ inch or so into the cartridge, they are held together with the finger and thumb of the left hand, setting the right hand at liberty. The spout and cartridge being slanted downwards, the assay mixture is gently, and by small portions, shaved into the cartridge with the round end of a small blade, or of a quill, cut scoop-wise. A few taps upon the capsule help to shake down the powder in the cartridge, and all that hangs about the capsule must be brushed after it with the camel's hair pencil, when the cartridge may be taken in the tin forceps (See *Mining Review*, No. 28, April, 1840), and the bottom tapped gently in the little mortar or mixing cup, to get all down snug. The cartridge is now to be closed by slightly squeezing together the empty upper part, and twisting it together a little, then cutting down the twisted end to about a quarter of an inch. Care must be taken, during charging and closing, not to lose assay powder by the cartridge opening at bottom. It is now ready for fusing.

5. *Charcoal Boring.*—We have next to fit it into a hollow in the charcoal. For this purpose a bit of steel rod, two inches long, and the size of the cartridge, may be filed while soft, to a bradawl edge, or, in preference to a cross-edge, by four notches from the circumference to the centre (*figs.* 8 and 9), then hardened, and set in a handle; or tools of the bradawl form may be purchased large enough, and answer very well when hardened. With this, a cylindrical hole, about a quarter of an inch deep, is bored across the grain of the charcoal by turning the tool backwards and forward, and not pressing hard enough to crush or split the charcoal. Soft wood charcoal is preferable to that from oak, but the latter will serve the purpose. The little cartridge being set in the hole, the twisted end up, is gently pressed down with the finger. A moderate reducing flame is now thrown upon it, so as to cover the end of the cartridge, which is immediately charred, but still protects the powder, by its remaining crust of soda, until the borax melting runs the whole together. The reducing flame may now be made as strong as we can, and kept up, quite covering the assay, until the whole of the copper is melted into a globule, in the midst of the slag, which may occupy two to five minutes, according to the skill of the operator. The whole of this blowpipe process and preparation is, indeed, much sooner finished, when we have the apparatus and materials ready, than this lengthy description would indicate. But it must be remembered that great part of this relates to the instruments, and that the operative part is explained in much detail, because new to this country.

6. *Correction for want of Skill and Experience.*—A good operator will thus get all the copper within 1 per cent. of the quantity submitted to the blowpipe; but it requires some tact as well as practice to get so close. The operator, had better, therefore, first ascertain by experiment how near he can come. Taking a piece of copper wire, or sheet, quite clean and bright, he files off some with a perfectly clean file, and weighs an assay—100 of the filings (as directed above against the bead on 100); he mixes this with soda and borax, packs it in the cartridge, and runs the copper to a single globule, giving it not less than four minutes good reducing flame; then knocking off the slag, and replacing the globule in the scale, he sees how much of his copper has been absorbed by the fluxes. This he should repeat several times, until he gets uniform products, which ought to be within 2 per cent. of the assay 100—that is, it ought to balance the bead upon 98; and, until his products are alike, and within at most 5 per cent., he had better not attempt this completion of a wet assay. Having thus ascertained his loss in the fluxes, he has to add this amount to his produce in fine copper by way of correction; and with this correction a steady hand may obtain by wet assay and the blowpipe as accurate an estimate of the proportion of copper in an ore as by the most delicate proceedings of chemical analysis. It is, nevertheless, still the safest way to weigh out a triple quantity (300 grains), taking it up from different parts of the sample, to dissolve, evaporate, and dilute this; and then divide it, exactly, into three parts—two for precipitation in separate bottles, and the third to be reserved. If, then, the two correspond in their produce of fine copper, after the blowpipe correction, the assay is trustworthy, though the precipitates may have differed by oxidation, &c., before correction; but if the products in fine copper disagree, the reserved third part is to be precipitated, and will seldom fail to show which is correct. I remain, Sir, your's, &c.,

Plymouth, April 5. J. PRIDEAUX.

Errata in the former part of this paper.—Page 109, eighth line from the bottom, *for* "add these to the solution," *read* "add them to the solution;"—p. 110, top line, *for* "spirit of water," *read* "one pint of water."

EMPLOYMENT OF SLAVES IN FOREIGN MINES.

TO THE EDITOR OF THE MINING JOURNAL.

I have much pleasure in communicating that the directors of the Imperial Brazilian Mining Association have resolved to make the next general meeting of shareholders, which falls on the 15th of next month, *special*, for the purpose of considering the propriety of emancipating the slaves; and though the directors, contrary to the spirit of the Deed of Settlement, persist in refusing to allow the requisitionists to see the list of proprietors, they have offered to enclose in the circulars calling the aforesaid meeting any paper which the requisitionists may wish to circulate on the subject to the proprietors, of which we shall gladly avail ourselves.—Thanking thee for the liberality with which thou hast advocated the cause of the poor slave in the columns of the *Mining Journal*,

I am, respectfully,

7, *South-street, Finsbury*, 4 mo., 14. HENRY TUCKETT.

[We are glad to find that the praiseworthy exertions of the enemies to slave labour have forced on the directors the consideration of the question, which will form subject of discussion at the meeting to be held on the 15th proximo. As a question of pounds, shillings, and pence, we can well conjecture the result of the question of emancipation being put to the vote; but we trust the generous and sincere appeal of the abolitionist shareholders will have weight with those who are influenced less by the love of lucre than Christian feelings. If loss is to be sustained by the emancipation of the slaves employed by the Gongo Soco Company, let the directors and officers of the company reduce their salaries in reduction of the loss which may be sustained. The manager abroad is paid some 2000*l.* or 3000*l.* a-year for being a slave driver, and the management at home costs 2000*l.* or 3000*l.* a-year to see that the manager abroad does his duty.]

ON BORING AND BLASTING, AND FLY-WHEEL CRANKS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I have delayed writing in continuation of the series on the first-mentioned topic, in the hope of being able to perfect my promised conception; but, such is the intuitive sagacity of the mind, and so free the flights of inventive fancy, our first ideas are generally best. Though "experience teaches wisdom," yet invention is rather an electric spark than a high pressure power. I fear, after this commencement, your readers are looking out for something splendid. Alas! alas! a dreadful falling off is here, my countrymen! But *nil desperandum* (never despair).

It appears to me that it is quite practicable to dispense with the use of the mallet in boring downwards, as well at the commencement as near the close. We will suppose a semi-sphere, with the borer in it ready for working. This semi-sphere to be of cast or wrought-iron, with two rings as holders for moving, and three or four adjusting down-pointed thumb-screws at the bottom—a vertical hole in the centre. Two handles of four holders each to be used (one at a time) to work the borer up and down (by one or two men). Two handles of different weights, according to the length and weight of the borer, so that the weight, with the hand-pressure downward, shall be sufficient to cut or pulverise the stone, with lever or thumb-screws, to fasten the handle to the borer. Now, supposing a man to press down with a given weight at the extremities, would it not act with a multiplied power on the sudden resistance at the centre or borer? In lifting the borer, the leverage would be no advantage, except the convenience. Quarrymen tell me they believe this plan would be practicable; if not, no bones will thereby be broken, though a spirit may be bruised by her own abortion!

Will one of your scientific readers, acquainted with dynamics, kindly inform me the amount of power (in continuing the revolution) that is lost in an ordinary steam stamps or steam whim, worked by a common beam, as well whilst the crank is passing over and underneath the central pen, as when the steam is on, and the crank passing from the central vertical line to A or B. The fall of the arcs, A B, B A, is very little, compared with B B and A A. In short, I want to know what power is lost by a crank being used to convert the rectilinear into a circular motion (as compared with a weight acting over a pulley), including inertia, continuous resistance, sudden impact friction, &c.? (I saw a fly-wheel of five tons at a steam-stamps the other day!) Say difference of pounds lifted one foot high, supposing the engine not to stop!

Your's, respectfully,

Penzance, April 6. A. T. J. MARTIN.

[We regret that we cannot give the diagram supplied by our correspondent, but we presume the explanation afforded by him will be sufficiently understood.]

ANTHRACITE AND BITUMINOUS COAL OF SOUTH WALES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Coal, of whatever kind or description, is valuable in proportion to the quantity of carbon it contains; therefore, before taking collieries, or purchasing coal for manufacturing purposes, it is most important to ascertain how far this great combustible element preponderates in the fuel so taken or purchased, as, by assuming a per centage greater than that actually possessed, very much mischief may be the result—indeed, I have known an important enterprise altogether abandoned, in consequence of the parties having been induced to believe their coal more highly carbonaceous than it was afterwards found to be.

I am led to these remarks by the perusal, in a late Journal of yours, of a geological lecture, delivered at Pontypool, wherein an analysis of some of the various seams of coal in this highly interesting basin are given; but the results are so extraordinary, that I should almost be inclined to say that some error of the printer had taken place. It is there shown that the veins of anthracite are exceeded in amount of carbon contained in their products, by those veins, which are well known to belong to the intermediate state between stone coal and binding coal—I allude to those at Hirwain and Cyfartha, which, unquestionably, contain more carbon than highly bituminous veins, but not so much as those purely anthraceous; and I cannot help expressing strong doubts of the Cyfartha pit coal holding 90½ per cent. of carbon in its composition, and the Hirwain veins cannot possibly contain 90½ and 90 per cent. of that elementary body. The Dowlais upper four-foot vein is also stated to be composed of 85 parts carbon in 100; this is, perhaps, still more surprising, as this seam is decidedly more bituminous than the Hirwain seams. Again, the elled vein at Nantyglo, which is essentially a bituminous coal, is alleged to contain 81½ per cent. of carbon. I am sure I shall be exceedingly glad to find that my doubts are without foundation, on account of the increased benefit the proprietors of all these works will derive from such astonishing analyses, but I am strongly inclined to believe that the immense quantities of carbon stated is the result of some mistake. The Yniscedwyn veins of anthracite are stated in the lecture to contain no more than 89 per cent. of carbon; now, I fear an error has crept in on the other side, for the valuable stone coal lying under the lands of that iron work certainly have always been supposed to hold considerably more; and as the fuel in that valley surpasses analogous veins in Cwm Neath, as regards quality, I should think this supposition is borne out, because it will be found, on inquiry, that Dr Schafhaeutl's examination and analysis of the last named seams amounted to upwards of 92 carbon—consequently, the Yniscedwyn veins cannot be less, but, in my opinion, contain more. I am, Sir, your's, &c.,

Neath, April, 13. LIONEL BROUGH.

[We are much obliged by the communication of our correspondent, as will, doubtless, he Mr. Llewellin, as affording him the means of rendering an explanation which may be satisfactory, or at least determine the correctness of Mr. Brough's assumption, or otherwise. We believe the several descriptions of coal referred to have been frequently subjected to analysis, and the correctness of Mr. Llewellin's figures, or those of Mr. Brough, may be readily tested by the experiments already made.]

ON THE IMPOSITION OF DUTIES ON IRON EXPORTED TO AMERICA.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I send you a Philadelphia paper, containing, in two Numbers, the ninth annual report of the Coal Mining Association of Schuylkill County, for the purpose of showing you the amount of anthracite coal trade in Pennsylvania, where this kind of coal is exclusively found. You will observe, from this document, that the importance of this article is becoming greater every year, and hereafter, in consequence of its being used not only for the smelting of iron ore, but also for converting pig-iron through all the after processes into bar-iron, which has not yet been much practised in Great Britain, its consumption must be very much augmented. You will observe, that the association recommend the imposition of a duty on railway iron imported from Great Britain. This article has been allowed to be imported into the United States for upwards of ten years' past entirely free of duty; and I am very much afraid, that unless this country will allow American corn to be imported at a moderate duty, that this important import into the United States will be subjected to a duty of 25 or 30 per cent. America receives British silks, linen, stuff goods, copper, as well as railway iron, and a great many other articles of great value, free of all duties, and yet Great Britain charges a prohibitory duty on corn, and a duty amounting to 900 per cent. on tobacco coming from the United States. Unless more reciprocity in the intercourse between the two countries be established, it is to be feared that the Americans, in the extra session of Congress, which will most probably be called for June next, will impose duties not only on railway iron, but on all British products imported into their country. You, Sir, as representative of the metal interest of this country, can, with great propriety, advert to this subject in your excellent Journal, and if you can attract the attention of the leading people in the Government to this subject, you may do much good, in bringing about a change well calculated to cement and increase the intercourse now prevailing between the two countries. Hoping that it may be convenient to take notice of the subject brought to your attention, I am, Sir, your's, &c.,

7, *Tidenhouse yard.* GERARD RALSTON.

[We are indebted to our correspondent for directing attention to so important a subject as that mooted in his letter. We have already availed ourselves of certain portions of the report which accompanied his communication, and shall take an early opportunity of reverting to it, as also offering some observations on the recommendation of imposing a duty on railway iron imported into America from Great Britain, the policy of which, on the part of the American Government, appears to us very questionable, but the question is one too intricate and important to be comprehended in a note. The subject, however, having been brought before our readers, we have only to observe, that our columns are open to the discussion, which will, doubtless, find advocates both *pro* and *con*.—the arguments which may be adduced by whom it is not for us to anticipate.]

ON MINE SURVEYING.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Being desirous of avoiding personalities in any discussion to which I may be a party in your columns, I must beg to be excused noticing the uncalled-for observations which have appeared in several letters on Mine Surveying, emanating from Callington. Without going over the ground again, I may observe, no doubt can exist but that the best method of finding the exact position of a new shaft, or any division of it, is by going over the ground twice at least; and I know also that the miner's dial is a better instrument than the theodolite for that purpose in our deep mines. If my opponent can show the contrary I will abide the consequence; but let him explain the process as I have done in the use of the dial, for his *dictum* will not pass with miners. With regard to the mathematical knowledge of Mr. Budge, I suppose that he knows how to measure a plane triangle, and, probably, if he has two sides and one angle given, he can find the third side of the triangle. If that is not the extent of his mathematical knowledge, it is all the mathematics that can be brought to bear on mine surveying. He must not really suppose that, because miners do not boast of mathematical knowledge, they are all ignorant of plane trigonometry. On the contrary, there are many who do understand it well, and who sometimes use trigonometry to show those who are unacquainted with the science, that it is practicable to throw all their drafts into one line; yet they never work by trigonometry as a matter of business, in mine surveying—they would as soon think of using a sledge-hammer to break an egg. As regards magnetic attraction—the magnetic needle, forsooth, must be laid aside, because iron is used in mines. Why does not your clever correspondent provide a substitute for mariners also, because iron is used in ships? There are iron guns in ships of war—there are iron chain cables—there are iron knees in the construction of vessels, and they carry iron ballast. Ships are used to carry whole cargoes of iron—there are ships constructed of iron—yet they traverse the broad Atlantic in safety. In Cornish mines we can always escape the force of attraction, by keeping the compass at a sufficient distance from iron to prevent any disturbance to the needle; yet we have caution upon caution not to employ so dangerous an instrument.

I hope Mr. Budge will review his own compositions, and revise his own mode of surveying, before he lay down further rules for others; and let him keep in mind that miners will "dare" to think for themselves, and are not likely to be dragooned into a change of system; indeed, Mr. Budge, from his experience, ought to know this full well.

I am, Sir, very respectfully, your's, &c.,

Perran, April 13. R. TAPPARELL.

* This depth is useful to prevent spirting over as the solution becomes thick.

† Thus suppose the precipitate to weigh 12 grains, and that out of 3 grains we get 1,75 fine copper—then as 3 : 1,75 :: 12 : 10,5 grains, corrected produce.

‡ The weight being further from the centre than the bead weight, the assay is, of course, lighter in proportion, but this does not affect the accuracy of the result, the loss per cent. being determined by the relative place of the bead, not by fractional weights.

BRITISH IRON COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

Thus bad begins, and worse remains behind.—*Shakspeare.*

Sir,—In your Journal of the 3d inst. you animadvert severely, but with justice, on the injurious effects of the "silent system" practised by several joint-stock iron companies, and caution other confiding shareholders from becoming the dupes of such "secret conclaves." Amongst other companies most distinguished for the ruinous consequences of this practice, you hold up the British Iron Company—believing, I presume, that the directors have most to conceal, from the gigantic extent of their operations, as compared with all other undertakings of a similar description, or the holders, in fact, of a very large portion of the whole capital, would not have united openly to file a Bill of Discovery against them, for an injunction to restrain their hands from taking any further steps injurious to their interest, and for an account, after having failed by every other means to obtain it, touching the application of 1,500,000*l.*!

You represent the capital to be only 1,200,000*l.*, and that the shares are worth "80,000*l.* less than nothing"—meaning, probably, that the whole 1,200,000*l.* is lost, with 80,000*l.* besides, as an additional sacrifice to the "silent system," for want of allowing your reporter and others from the press to make known the proceedings to absent shareholders—three-fourths of whom (say 300) are generally not present, either from residing in the country, or the very little encouragement they have hitherto received to give their time, as well as their money, to this most disastrous speculation.

But, Sir, the case is even worse than you state, for the holders of more than 18,000 shares may—and, judging from the past, will—be called upon to pay 40*l.* per share more, or 720,000*l.* at least worse than it now is, should they not unite in one common cause to resist injustice and fraud, and demand to know why the present suit in Chancery (by Mr. Attwood against the directors) has been left for nearly sixty weeks without a defence, at a cost to the company of 16,250*l.* per annum, and a large expenditure besides, for a worthless property, for want of the only possible grounds of defence—discovered by myself, as will be seen to be the opinion of a highly respectable solicitor, Mr. T. M. Vickery, if you will insert the inclosed letter,* which the requisitionists of the last special general meeting, holding nearly 100,000*l.* in the company, requested might be appended to their resolutions included in the notice for that meeting, but which the directors omitted altogether.

In 1826, to accommodate the declining finances of many of the principal holders, who, with others, were in arrear for calls, even at that time, upon several thousand shares, had the real list been reported, while 668 shares, belonging to parties not equally favoured, were declared forfeited, the capital of 2,000,000*l.* was changed into 1,000,000*l.*, on the solemn pledge of the directors that the speculation should be reduced from 100*l.* to 50*l.* shares. Nevertheless, in 1838, the capital was shifted back again to 2,000,000*l.*, to enable the directors to borrow, according to the opinion of counsel, illegally, 300,000*l.*, principally to pay arrears of interest to Mr. Attwood for a profitless estate and works, and to continue the prosecution of similar works with unexampled vigour, so that the shareholders who bought their shares previously—including a very numerous body—relying on the pledge of the directors, published in their report, dated the 7th September, 1826, that they would not be called upon for more than 50*l.* per share, suddenly found themselves entrapped into a demand for double the amount, with a writ at the back of it in 1841, to force, if possible, by law the payment; or should it be considered that the last farthing really has been drained, a milder form of injury will be adopted by the forfeiture of the whole of the first investment, for having so foolishly relied on the presumed integrity of assurances that ought never to have been broken. But if a violation of faith on the part of the directors be unjustifiable in the most ordinary case, how much more is such a breach to be reprobated, where the unwary shareholder is called upon to pay double the amount of his bond, whether he is able or not to comply with the demand, to enable the directors, not to improve his investment, but to pay for a single estate, in principal, interest, and law, nearly 1,100,000*l.*, being ten times more than the whole property is known to be worth by thirteen local valuers, but whose valuations were not taken till after the purchase was saddled upon the shareholders. Surely, Mr. Editor, this is carrying the "silent system," which you so honestly condemn, far beyond every resemblance to fair dealing. Yet a great number of the shareholders of the British Iron Company are now actually in this dilemma—unable to double their contracts from 50*l.* to 100*l.* per share, to make up losses, not profits; while actions have been commenced to compel them, by intimidation or law, to pay the amount, even if they "sell the shirts off their backs," according to the advice of one who, probably, has either lent part of the borrowed money, or is otherwise interested in securing the payment of it, although five of the most eminent counsel have unanimously declared that the shareholders are not liable to pay any part of the debt for which the loan of 300,000*l.* was contracted.

Now, Sir, I ask, can this be justice? or, if the directors of the British Iron Company will have recourse to such proceedings to get out of the ruinous acts into which they have personally involved themselves by secret negotiations with Mr. Attwood, in defiance of all the remonstrances and protests of the united shareholders, can any one wonder that the letter of Mr. Vickery was kept back from the eyes of the shareholders before they assembled on the 25th February last, to consider the very case to which that letter refers? or can any one be astonished that the respectability of the requisitionists, holding nearly 100,000*l.* in the company, should be attacked by the chairman, to deter the shareholders from confiding in any case which they had recommended for reference to counsel? For, instead of granting an immediate inquiry into the charges of fraud preferred against some of the agents of the company, which, if true, are calculated to save the shareholders from enormous liabilities and losses, what was the conduct of the chairman of this meeting?—he not only did not attempt to refute a single charge, but endeavoured by every means in his power, after practising the "silent system" for fifteen years, to render the author of them unworthy of credit in the estimation of the shareholders assembled, although he knew that the late chairman, then sitting by his side, had only recently borne the most honourable testimony to his moral character and integrity.

For the information of your readers (including a very numerous body out of 400 holding shares in the British Iron Company), I will briefly notice a few samples of the "silent system," showing how it has operated to their prejudice. Before Mr. Shears objected to the ruinous purchase of Mr. Attwood's estate, although he subsequently authorised the solicitor of the company to ratify the contract in his own name for 550,000*l.*—being, I presume, ashamed to sign it himself—he and the other managing directors had agreed to renew the original agreement of the 10th of June, 1825, for 600,000*l.*, without any statement whatever, although they knew the first contract was broken by defect of title, and that the property was otherwise worthless. They agreed also that Mr. Attwood should make any title he could—bad, if not good—for this enormous obligation, provided only that he would release themselves from all personal liability for the whole amount of the purchase-money, at a cost to the shareholders of 225,000*l.* in cash down, a mortgage of 325,000*l.*, and 16,250*l.* per annum for interest thereon, so long as they continued to hold the estate in their own names. Thirdly, they consented to take the personal bond of Mr. Attwood for all the consequences of a bad title, and to pay him 325,000*l.* before they reserved 75,000*l.* as an additional security for the shareholders—thus ensuring to Mr. Attwood first, more than five times the value of the whole property. This infamous contract was prepared, and tendered for execution to Mr. Attwood three times between the 1st and 10th of October, 1825—and, like the first contract, unknown to the board of directors; but Mr. Attwood was too cunning to complete the contract before other steps had been taken to deceive the latter into the adoption of the purchase.

Another feature of the "silent system" has reference to the marvellous mutability of profits. In June, 1825, the trade of Mr. Attwood was represented to be yielding more than 100,000*l.* per annum. In October, 1825, the profits were admitted to be 60,000*l.* per annum less; yet the purchase was still recommended as a very eligible investment, on precisely the same terms—600,000*l.* In December, 1825, after the purchase was thrown upon the company, and the managers were relieved from the ruin of such a bargain, they discovered that Mr. Attwood's trade was losing 15,000*l.* per annum. In March, 1826, when the money was wanted to pay Mr. Attwood, and to meet a bill accepted by themselves for 50,000*l.*, to their own ruin, before they had got rid of the purchase, the net profits were reported to be 30,000*l.* per annum, with as much more in the back ground from the freehold, which never has produced any profit whatever. In September, 1826, after the first committee had been sitting three months to investigate the transaction with Mr. Attwood, from a statement submitted in writing by the managers themselves, (that committee were so completely deceived, that the shareholders were actually told the same day, and at the same meeting to which the committee reported that the assets of the company were fully equal to all the existing demands; whereas, the company was plunged at that time into debts and losses greatly exceeding 600,000*l.*, while the estates were reported to be free from every incumbrance, although the principal estate, which had cost nearly four times the amount of all the other freehold properties, was mortgaged for 325,000*l.*, or more than three times the value of it.

In 1838, when the shareholders were drawn into a loan of 300,000*l.*, they were amused by assurances from the chair, that if the trade generally continued as prosperous as it had been, the profit would not be less than 600,000*l.* per annum; whereas, whenever the affairs of the company are fairly wound up, or the proposed Bill of Discovery is truly responded to by the directors, the whole loss will prove to be, on the average of the whole operations of the company for sixteen years, not less than 50,000*l.* per annum, besides liabilities for leasehold rents for minerals, amounting in the aggregate, for the next forty-five years, to at least 225,000*l.*

Lastly, it will be seen that, although more than 200,000 tons of iron, and greatly more than one million tons of coal have been sold, and at least 1,100,000*l.* sunk in profitless estates, works, and law, while the freehold properties have been over-bought by at least 500,000*l.* sterling, not a single profit and loss account, nor a single balance-sheet, has ever been placed in the hands of the shareholders generally during the whole existence of the company, from 1825 to 1841 inclusive. I scarcely need add, that the pamphlets continue to this hour unrefuted.

I remain, Sir, your's, &c.,

London, April 16. AUTHOR OF THE PAMPHLETS.

* Letter from T. M. Vickery, Esq., to the committee of shareholders appointed to examine the case for their relief against the claims of Mr. Attwood:—

"25, *Lincoln's Inn-fields, 1st January.*

"GENTLEMEN,—Having bestowed considerable time and attention to the papers and proceedings laid before me, relating to the transactions between Mr. Attwood and the British Iron Company, I now beg leave, agreeably to your request, to state to you the opinion I have formed thereon. It is certainly the conviction of my mind, that the very strong facts which have been brought into view, with the proofs referred to in support of them, do constitute substantial grounds for relief to the shareholders, from the very large sum they are still called upon by Mr. Attwood to pay, if not indeed from the entire contract for the purchase originally made, if the proofs in question can be still obtained; and from the explanations afforded to me, as well as by reference to the documents, papers, and proceedings more immediately relating to such proofs, I am led to consider that they, or a sufficient portion of them, are still accessible. A question arose in my mind, whether the ground was still open to the shareholders, after such a course of past litigation, and with the ultimate decision of the House of Lords against them; but on this point my view is fortified by the opinion of counsel given to me for my satisfaction, and which is in confirmation of my first impression—namely, that the production of positive proofs of fraud and collusion, not before adduced, with the circumstances connected therewith, will unquestionably, even now entitle the shareholders to relief. There appear to be several modes of proceeding open to them, and amongst them I would point out, that they may avail themselves of these facts and additional evidence, in their defence to the present pending suit in Chancery by Mr. Attwood; or the shareholders may cause a Bill of Review to be filed, which latter seems preferable, because it would go to obtain complete relief from the entire contract from the first; in fact, it would embrace all the relief and benefit sought but unfortunately not obtained for want of the requisite proofs being brought forward by the original bill in 1826.

"I am, Gentlemen, &c.,

"T. M. VICKERY."

ON MINE SURVEYING.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—Having of late read in your valuable Journal several letters written on mine surveying, from some, I suppose, practical men, I beg, individually, to ask them—Did they ever dial under the sea for a mile in length, where the hydrogen gas is so strongly impregnated that the men's lives are daily in danger, depending on correct dialling and free ventilation of air? Is this done by the old system of surface dialling and pegging?—No, by no means. Perhaps some of your inland navigators would require a boat loaded with pegs for the top survey, and, very probably, before he should arrive safe on shore would see the bottom.

Your "Mawgwr" correspondent says, "with your permission, I will state more fully my opinion of the safest and easiest way of mine surveying." I suppose he means the "black diamond" as well; and, to save him the trouble, I beg leave to invite him to the scratch—and if he comes I will teach him what he never learned—at the same time he will see underground thunder and lightning. The Holywell correspondent, who, I believe, is a Cornubian, grown lately in the neighbourhood like a mushroom, is full of malice towards "Cambrian," for stating nothing but the truth, whose long practical knowledge and correct underground surveying never was doubted. I remain, Sir, your's, &c.,

Bagillt, near Holywell, April 13. A COLLIER.

ON THE RESOURCES AND APPLICATION OF COAL.

[We last week inserted a lecture on this subject, delivered by Mr. Wm. Llewellin, jun., at the Pontypool Mechanics' Institution, in which it appears (from a communication with which that gentleman has favoured us) there were several exceedingly erroneous statements. A *printed* copy of the lecture being furnished us by a correspondent, we had no reason to doubt its general correctness; however, we readily give insertion to the following letter, as rectifying some material errors, which might otherwise much mislead our readers.]

Sir,—In your last week's Number I observe a report of a lecture which I delivered a short time since at the Mechanics' Institute, in this town. I assure you that I feel much gratified at your considering my humble attempt worthy of notice, but, at the same time, I regret to state that the report with which you have been furnished is very incorrect. Knowing, as I do, that your Journal has long sustained a high character for correctness—that it circulates amongst a great portion of the intelligence of the county—and amongst men who must, from the nature of their pursuits, be practically acquainted with the subject, I feel it to be necessary, in justice to myself, to notice some of the most prominent errors. I am reported to have said, that "in the tertiary formation, enormous reptiles, some of which were 100 feet long, had been discovered." Now those reptiles are entirely confined to the secondary formation, and the whole of them are consequently extinct; it being a principal characteristic of the secondary class of rocks, that they contain organic remains of extinct species only. In another part of the report I find the following passage:—"Coal, with the shale limestone alternating with it, is called the coal measures; the place of which is above three formations, lying on the old red sandstone." This, again, is incorrect. The coal measures consist of coals, shales, indurated clays, and sandstones, which lie one above another in alternate layers, somewhat similar to the leaves of a book, the limestone forming a cavity, or basin, in which they are deposited. Coal has, however, been found interstratified with the limestone—this being the case in the Newcastle coal field—but I do not believe that it is so in this district. The coal measures generally repose on a class of rocks called the millstone grit, lying immediately above the carboniferous limestone; this limestone reposing on old red sandstone, which may be said to form the characteristic lining of a coal basin; and these four different series of strata are comprehended under the term "coal formation." In noticing a general law relative to "faults," a very great error is made; and as the knowledge of this principle is of vast importance to the practical miner, in pursuing his operations, I shall take the liberty of explaining it. If, on driving a mine against one of these faults the vertical line of it forms an acute angle with the stratum of coal, the miner is certain that the strata are thrown downwards on the other side of the fissure. If, again, the line before-mentioned forms an obtuse angle, it is equally certain that the strata are thrown upwards on the other side. But, when the fault is perpendicular to the seam, and forms a right angle, it is quite impossible to tell whether the minerals are thrown up or down, and it frequently happens that they are found on the other side upon the same plane, the fault merely forming a barrier, or wall, between them. It is also stated that "the fossils of the coal measures are all vegetable." This, again, is erroneous, for fish and shells are found in great abundance. You must be well aware that in the confined limits of a single lecture it was quite impossible for me to treat this important subject very fully. In noticing the origin and mode of formation of coal, I therefore confined myself to a few of the most important phenomena connected with these points, and which tended to prove what I endeavoured to establish—its vegetable origin; and I did not consider it necessary to allude to any other than vegetable fossils. I likewise observe it stated that "coal is forming at the present day." I do not believe that I made this statement, as I am of opinion that the evidence adduced in support of this hypothesis is much too slight to warrant us in coming to such a conclusion. In explaining some of the hypotheses of modern geologists relative to the formation of coal, I alluded to the effects produced at the present day in North America, by rivers, in drifting wood and other vegetable matter, and stated, on the authority of Lyell, that the banks of the Mackenzie River presented, almost throughout, horizontal layers of wood coal, alternating with bituminous clay and friable sandstone, and that such deposits were now, undoubtedly, forming at the bottom of the different lakes traversed by this river. But I cannot admit that the present operations of Nature are adequate to the production of mineral coal. There are other inaccuracies, but, as they are not very important, and I have already troubled you with rather a long letter, I shall leave them unnoticed. If you consider that a few articles on coal, and its various applications, will be likely to prove interesting to your readers, I may, perhaps, do myself the pleasure of forwarding you some communications on the subject. I remain, Sir, your's, &c.,

Pontypool, April 12. W. LLEWELLIN, Jun.

[It will be observed by our correspondent that Mr. Lionel Brough, whose letter appears in our columns, raises other questions of inaccuracy besides those observed upon by Mr. L., to which that gentleman will doubtless reply. It will afford us pleasure at all times to give insertion to Mr. Llewellin's communications, and to those of other correspondents on the South Wales district.]

TO SCIENCE.

Soul-cheering light—guide of an erring world—
Great corruscation of the Deity!—
How are we all in boundless debt to thee,
That to our ear the roll of Truth unfurled!
Dim was our knowledge in those early days,
When Man, the savage, in his rudeness, came
To people cities, from the chace of game,
Unknown to emulation in thy ways.
Now thy fresh lustre, brightening year by year,
Scathes the fell bigot with unquenching ray;
And wakes our aspirations of a day
Undreamed of yet, to light our brief career
In loftier paths, more just, more unconfined,
Worthy the empire of immortal mind!

EVAPORATIVE POWER OF DIFFERENT KINDS OF COAL.*

BY ANDREW FYFE, M.D., F.R.S.E.

President of the Society of Arts for Scotland.

The experiments, the results of which I am now to bring before the society, were undertaken with the view of ascertaining the comparative evaporative power of different kinds of coal. Of course, in this investigation, my attention has been directed solely to the power of the fuels in raising steam, with the view of testing their comparative value for steam-engines. This subject has lately engaged much of the attention both of scientific men and of practical engineers, and much valuable information has been communicated regarding it. Much, however, yet remains to be done; and now, when, owing to the rapid increase of steam machinery, the demand for fuel is so greatly increased, it becomes the duty of all who can add to the sum of our information, to make public the result of any experiments they have made on this important subject.

Very different opinions have been, and are still, entertained regarding the source of heat during combustion, and of the power of different inflammables for evolving heat. The recent experiments of Despretz on this subject are, perhaps, the most important, as tending to the deduction of a law by which, if correct, we shall be enabled to calculate with accuracy the amount of heat evolved by different combustibles. From his numerous experiments, Despretz has drawn the conclusion, that the heat disengaged during combustion is in proportion to the quantity of oxygen with which the combustible unites. Thus applying this rule to hydrogen, carbon, alcohol, and ether, and taking the quantity of water raised from 32° to 212° as the means of measuring the comparative amount of heat disengaged, he found, by experiment, that the quantity of water brought to the boiling point by the union of—

1 lb. of oxygen	with hydrogen, was	29½ lb.
,,	with carbon	29 ,,
,,	with ether	28½ ,,
,,	with alcohol	28 ,,

results so very nearly agreeing with each other, that, keeping in view the unavoidable sources of error in all experiments of this kind, we may consider the quantity the same in all. The average of the above trials is 28¼. Hence, when one pound of oxygen enters into union with any inflammable, heat is evolved, which, according to Despretz, is sufficient to raise 28¼ lbs. of water from the freezing to the boiling point. It may be stated in round numbers as 29 lbs. We have thus, then, a method of procuring a standard for the amount of heat disengaged during combustion. Thus 1 of carbon unites with 2·66 of oxygen, and 2·66 × 29 = 77·14, so that, by this process of calculation, 1 lb. of carbon ought to raise 77·14 lbs. of water from 32° to 212°. This is rather below what is stated by Despretz. He has fixed it at 78·15.

Different statements have been given of the quantity of caloric received by water during its conversion into steam; in other words, of the latent heat of steam. If we suppose, as has been stated by Lardner and others, that it requires five and a half times as long to evaporate water that it does to raise it from the freezing to the boiling point, then the latent heat will amount to 930. But others have made it lower than this. According to Despretz it is only 955·8. Assuming this as correct, then in steam the total number of degrees of temperature beyond 32 is (180 + 955·8) 1135·8—say 1136. Hence if 1 lb. of carbon will raise 78·15 lbs., as stated by Despretz, from 32 to 212, it will evaporate 12·3 lbs. from 32—and this is the quantity fixed on by him.

It is well known that the different substances used as fuel consist, in their original state, chiefly of carbon and of hydrogen; in addition to which there is generally a minute quantity of oxygen and of nitrogen, and there is always a portion of earthy and metallic matter, constituting the ashes. The only one of these which, in addition to the carbon, will evolve heat during the combustion, is the hydrogen. Now, one of hydrogen combines with eight of oxygen, or exactly three times as much as carbon requires; 1 lb. of hydrogen will, therefore, evaporate 37 lbs. of water from 32.

It is evident from this, that if we know the composition of the fuel, we can calculate the evaporative power by knowing the quantity of oxygen necessary for converting the carbon and hydrogen into carbonic acid and water. Of course, the greater the proportion of hydrogen, the greater ought the evaporative power to be. If the fuel contain nitrogen, a part of the hydrogen must be deducted from the whole quantity, because the nitrogen will unite with it to form ammonia; and, again, if oxygen exist in the fuel, the hydrogen which is requisite to convert that oxygen into water must also be deducted, and, accordingly, in addition to the carbon, it is only the hydrogen over and above what is required for uniting with the nitrogen and oxygen, that are to evolve heat by the combustion.

The most recent account of the analysis of various kinds of coal, is that published by Mr. Richardson, in the *Trans. of the Nat. History Society of Newcastle*, and also in the *Lond. and Ed. Phil. Mag.*, for August, 1838. From his experiments he has given the composition of the coal, and the quantity of oxygen necessary for the combustion. The following table shows the results, dividing the coals into four classes, as mentioned by Dr. Thomson:—

Coal.	Locality.	Carbon	Hydrogen.	Oxygen and azote.	Ashes.	Oxygen required for combustion of 100 parts.	Heat evolved by the same weight, Fr. 100.	Heat given out by same wt., Ed. 100.
Cannel	Edinburgh	67·267	5·405	12·482	14·846	217·8	100	100
—	Lancash.	80·13	5·466	9·019	5·385	256·8	117·93	117·91
Splint	Wigan	74·853	6·180	3·956	15·012	240·1	110·24	109·39
—	Glasgow	82·774	5·631	10·457	1·138	265·3	121·82	114·15
Cherry	Newcastle	84·846	5·038	6·435	3·681	253·9	116·56	112·67
—	Glasgow	81·264	5·462	11·973	1·301	244·9	112·42	107·78
Caking	Newcastle	87·982	5·233	3·454	3·331	266·7	122·46	119·03
—	Durham	87·274	5·171	6·038	2·519	250·2	114·88	111·31

From this table it appears that there is not much difference in the heat evolved by the perfect combustion of the varieties of coal mentioned; assuming that the heat is in the ratio of the oxygen consumed, thus leaving out the cannel coal, which is not used for steam-engines, and also the Wigan, which is not now in the market, the extremes are 122·46 and 112·12; that is, as 100 to 109·3. Or, taking the average of the two samples of Scotch coal and that of the English, it is as 100 and 109·6. These numbers may, therefore, be considered as representing—the former the Scotch and the latter the English—caking coal.

The analysis of organic matter, such as that used for fuel, requires a great deal of nicety in the manipulation; it has, therefore, been proposed to adopt a simpler method for arriving at the quantity of oxygen necessary for the combustion, than by ascertaining the proportions of the ingredients. A very ingenious method of doing so has been recommended by Berthier, founded on the decomposition of metallic oxides by inflammable matter. It is well known that when these oxides are heated with carbon, carbonic acid is expelled and the metal is reduced; and the same also occurs when hydrogen is passed over the oxide previously heated. Now, when coal is exposed to heat along with an oxide, both the carbon and hydrogen unite with the oxygen, and metal is set free. If, therefore, we previously know the composition of the oxide, and after heating it with the combustible, we can ascertain the weight of the metal produced, we, of course, know the quantity of oxygen

* Read before the Society of Arts for Scotland, 9th February, 1841, and ordered to be printed in its Transactions.

which that metal has yielded to the combustible. By far the best oxide for that purpose is litharge, because it parts with its oxygen easily, while both the metal set free and the excess of oxide used are melted, and during the subsequent cooling and congelation the heavy metal falls to the bottom of the vessel, and, when solid, can be easily removed from the oxide and weighed. For the necessary precautions in conducting this process, the reader is referred to *Berthier's Traité des Essais par la Voie Sèche.*

As carbon requires 2·66 of oxygen for complete combustion, it will set free 34·66 of metallic lead from litharge. Now, one of carbon will boil off 12·3 of water; accordingly a fuel which, when heated with litharge, yields 34·66 times its weight of lead, ought to evaporate 12·3 times its weight of water from 32, provided the combustion is perfect, and provided also the whole of the heat evolved by the combustion is absorbed by the water. Should the quantity of lead be greater or smaller, then the evaporative power of the coal will be proportionably greater or less. It is well known, however, that in burning fuel the combustion is rarely, if ever, perfect, and it never happens that the whole of the heat evolved is taken up by the water; as to the latter, there always is—indeed, in the common way of consuming fuel, there must be—a waste, which is necessary to keep up the draught; but, in addition to this, much of the heat must also be lost by the ascending current of air, which in some furnaces is excessive, and, of course, the waste is enormous, frequently amounting to one-third, sometimes to one half, of that evolved. With regard to the imperfect combustion, much must depend on the nature of the fuel and on the particular construction of the furnaces. Thus, when the fuel in common use is heated, it gives off gaseous inflammable matter, which, if it be brought in contact with air at the requisite temperature, will be inflamed; but if air be not present, or if there be a deficiency of it, then the greater part of the gas will escape without undergoing combustion, and hence the waste which, it may be said, occurs in every furnace constructed in the usual way. It has been supposed by some, that the combustion is perfect where there is no smoke, but this is by no means a proof that the whole of the inflammable is consumed; a part of the gaseous matter may be escaping in the state of hydro-carbon, or of carbonic oxide, without undergoing any action, and if so, it is just so much fuel wasted. It is evident, then, that the practical evaporative power must depend very much on the manner in which the combustion is effected, and also on the peculiar constitution of the coal; even when the combustion is as perfect as we can expect, still there may be a loss of heat from the generation of the gaseous materials; for when the carbon and hydrogen are evolved as hydro-carbons, they must absorb caloric to enable them to assume the gaseous form. Though we should naturally expect, therefore, that the heat evolved by those coals which contain much hydrogen should be greater than when little of it is present, this is not always the case; indeed, we shall find that the practical evaporative power is greatest when the fuel contains a great deal of fixed carbon; for when the carbon is in that state, it must, before it can escape, combine with oxygen, and thus be consumed; whereas, as already mentioned, the hydro-carbons may partly fly off without being burned.

From what has been said, it is evident that the method proposed by Berthier is well adapted for ascertaining, with ease, the amount of heat that ought to be evolved by the combustion of a fuel—yet it does not indicate the available heat; in other words, what may be called the evaporative power in practice. The only method, I conceive, by which this can be done, is by actual combustion in properly constructed furnaces, and by measuring the quantity of water that is evaporated by the use of a given weight of the fuel, and we can then compare this with the quantity which carbon will evaporate, and which, as already stated, is, according to Despretz, 12·3 times its own weight from the temperature of 32.

I am aware that, to this method, the objection may be urged, that as our furnaces are never so constructed as to effect complete combustion, and that as the combustion varies very much in different furnaces, the results ought not to be relied on. Now, this is undoubtedly so far a valid objection; but if our trials are conducted with what will be allowed to be a furnace constructed on proper principles, and if the trials are made on the different fuels, making such adjustments and alterations as may be requisite for the fuel under use, then the results, though they do not give what ought to take place, yet give the comparative evaporative power in practice, and in this respect become extremely valuable, as pointing out the kind of fuel that is most beneficial for the purposes required.

From the opportunities I have had of testing different fuels in this way, both on a large and on a small scale, I trust the results will be found of sufficient importance to require no apology for my laying them before the Society.

In the following statement I shall give the results by actual trial in furnaces, and compare them with those which ought to be got according to the composition of the fuel, and also according to the method proposed by Berthier. In conducting the analysis of the fuel, I have not thought it necessary to ascertain minutely the proportion of all the ingredients. I have determined merely the quantity of moisture, of gaseous matter evolved by heat, of fixed carbon, and of ashes or incombustible material; and this was done in the usual way, by expelling the moisture by cautious application of heat; then driving off the volatile matter by exposure to a strong heat, excluded from air; and, lastly, heating in contact with air, to burn off the fixed carbon, and thus to ascertain the proportion of it and of the ashes. The combustion, by the process of Berthier, was conducted with the usual precautions, so as to secure success.

With regard to the furnaces in which these trials were made, they were sometimes small, at other times, and most frequently, large, such as those attached to a four and ten horse engine. In carrying on the experiments with one particular kind of fuel, I mean anthracite, it was necessary to have recourse to a peculiar construction of furnace, so as not only to secure the complete combustion of the coal, but also to try its power in raising steam rapidly, which, it is well known, is necessary when the fuel is to be used for steam-engine furnaces; and it is of the utmost consequence to keep this in view, for however great the evaporative power, even in practice may be, that fuel is of little value if it cannot be burned so as to make it applicable for the purposes for which fuel is generally used, such as the rapid raising of steam, and keeping up a sufficient supply for the engine.

The experiments, the results of which I am first to detail, were made with the view of ascertaining the comparative practical evaporative power of anthracite and of Scotch coal. They were conducted with a furnace attached to a four-horse high-pressure boiler; the furnace bars, of which there were from twelve to fourteen, according to circumstances, were each three feet six inches in length, and in all two feet four inches in breadth, including the spaces between them, giving seven feet of fire surface. It was at first fitted up with flash flues, which were afterwards changed to the common flue, eighteen inches by fourteen, passing along the boiler on one side, returning on the other, and then entering the chimney. The chimney-stalk was twenty-two inches by eighteen, and thirty-three feet in height, in addition to which an iron tube, of a foot in diameter and twelve feet in height, was attached—thus making the whole height forty-five feet. To this furnace and boiler there was attached an apparatus by which the fuel could, when required, be supplied with warm air. It consisted of a metallic box, placed immediately beyond the end of the bars forming the floor of the furnace, from which there proceeded tubes that passed through the boiler, and so placed in it as to be surrounded by the water. From these, after passing through the front of the boiler, a larger tube was transmitted to the ash-pit. A drain was carried from the side of the furnace to the box situate beyond the fire-bars to supply air, and the ash-pit was furnished with a door which fitted tight, so as to prevent any current up through it. By this adjustment, when the ash-pit door was shut, the air for combustion was supplied through the box, heated to a considerable degree, and after passing through the tubes in the boiler, then proceeded to the ash-pit, and rushing up through the fuel kept up the combustion. By apertures left for the purpose, and supplied with plugs, the temperature of the air passing into the ash-pit was ascertained.

The apparatus just described is that patented by Mr. Bell, with the view of increasing the heating surface exposed to the water in the boiler, and thus increasing the amount of evaporation. I do not, however, bring the experiments forward with the intention of proving the efficacy of this patent. It is not at all my intention to enter into its merits. I had recourse to this apparatus, merely as a means of enabling me to burn the anthracite, so as to make it subservient for the purpose of raising steam, and of keeping up the supply; and thus also to enable me to compare its practical evaporative power with that of bituminous coal.

The mode of conducting the experiments was as follows:—One person was intrusted with the weighing of the coals, the weighing being at the same time checked by another. To another was intrusted the measuring of the water supplied to the boiler. This was done by measuring it by a four-gallon measure into a vessel, in which was the mouth of the pipe connected with the force-pump by which the water was forced into the boiler. The water was in all of the experiments at the temperature of 44°. The height of the water in the boiler was known by a float connected with a wheel and index, which moved easily as the float rose and fell. This index was always brought to the same point at the commencement and termination of the trial; and, accordingly, the water in the boiler was always at the same height at these periods. Before beginning, the fire was examined a considerable time after the stoking, and adjusted to the proper height, and it was brought as nearly as possible to the same state at the termination. In this way there was a constant quantity in the furnace at the commencement and termination, and accordingly it was only that which was supplied during the continuance of the trial that was considered as the fuel consumed.

I am aware that objections may be made to this mode of ascertaining the quantity of fuel used, as it is difficult to bring the fire exactly to the same state at the different periods mentioned. This objection, I allow, would apply, were the trials of short duration; but in a six or eight hours' trial, any slight difference in the state of the fire must make a very trifling difference in the total result, where the quantity of fuel employed amounts to several hundred weight.

Scotch Coal.—I conceive it unnecessary to give the result of the numerous trials made with this fuel. They, in general, come very near to each other. I give the particulars of one only, which was conducted with great care, and in the result of which the utmost confidence may be placed. The coal used was from Middlerig, and is considered of good quality:—

Time.		Fuel.	Water evaporated in gallons.		Temp. of air thrown into ash-pit.		Cinders in ash-pit.
h.	m.	lbs.					lbs.
10	35	—	.....	—	.....	.....	—
11	35	112	.....	64	415 at 11	.....	—
11	35	—	.....	—	.....	.....	—
12	55	112	.....	68	.....	.....	—
12	55	—	.....	—	.....	.....	—
2	—	112	.....	68	410 at 1·30	.....	—
2	—	—	.....	—	.....	.....	—
3	5	112	.....	68	.....	.....	—
3	5	—	.....	—	330 at 3·30	.....	—
4	25	112	.....	80	.....	.....	—
4	25	—	.....	—	.....	.....	—
5	25	112	.....	68	.....	.....	—
5	25	—	.....	—	.....	.....	—
7	35	112	.....	72	360 at 6·15	.....	—
9	—	784		488	—		52

In this trial the furnace was supplied with the cwt. of coal at three different stokings. The pressure on the boiler was 17 lbs. beyond the atmospheric pressure.

The above table shows that 784 lbs. of fuel were used, and that 488 gallons—that is, 4880 lbs. of water—were evaporated from the temperature 45°, thus giving a result of 6·22 lbs. for each pound of coal, at 17 lbs. pressure.

On subjecting the coal used in this trial to analysis, I found it to consist of—

Moisture	7·5
Volatile matter	34·5
Fixed carbon	50·5
Ashes	7·5—100·0

I may here also state the result of another trial made with a Scotch coal got from a different place, and with another furnace, not fitted with the hot air apparatus. It was one attached to a ten-horse high-pressure engine. This trial was conducted in the same way as the former, and nearly at the same pressure—due attention being paid to the weighing of the fuel, the state of the fire at the commencement and termination, and also to the height of the water in the boiler, which was ascertained also by a float and index. Without giving the particulars, I may merely mention, that the trial lasted from eleven till four o'clock. The total quantity of coal used was 540 lbs., and the total amount of evaporation was 3580 lbs., thus making the result 6·62 lbs. for each pound of coal used.

In the former trial the water supplied to the boiler was at 45°, in the latter the return water from the boiler was thrown into the supply tank, and hence the temperature was higher. It was found, on an average, to be at 170°, which will so far account for the greater amount of evaporation.

In the table given by Richardson, already referred to, the quantity of oxygen necessary for the combustion of the specimens of Scotch coal analysed, is 247, which would make the evaporative power 11·3, compared to that of pure carbon as 12·3. By the test with litharge, as proposed by Berthier, I found that the greatest quantity of oxygen required for the combustion of the fuel with which the first trial above given was made, was 205, which would make its evaporative power 9·48. But by the furnace trial only 6·22 were evaporated.

Now, 9·48 — 6·22 = 3·26 and 9·48 : 3·26 :: 100 : 34·34, without taking into account the slight difference in temperature between 32° and 45°, there was, therefore, a loss of 34·38 per cent. of the heat supposed to be evolved, provided the whole of the fuel was consumed; but in this trial the cinders in the ash-pit amounted to 52 lbs., and deducting this from the fuel used, there were only 732 lbs. actually consumed, which would make the evaporation amount to 6·66, and 9·48 — 6·66 = 2·82, and 9·48 : 2·82 :: 100 : 29·97—thus giving a loss of 29·97 per cent. of the heat evolved, supposing 732 lbs. of coal had undergone complete combustion.

I am aware that it may be objected to this trial, that as the loss is so great, the furnace must have been very defective in its construction. I may here state, however, that, with the exception of a slight deficiency in draught, the furnace, which had from the commencement of the experiment undergone numerous alterations and improvements, was considered by competent judges as built on the most approved principles; but though there is a vast loss of heat in this instance, we shall find that the result, so far from being a bad one, is rather beyond what has been stated by others. When coal is used for steam-engines, of course the quantity used must depend very much on the power of the engine, its construction, and the use to which it is applied. It has been stated, that, taking the average of many trials, from 10 lbs. to 15 lbs. of coal are required for each horse-power. Now, it is generally allowed that, for each horse-power, a cubic foot of water must be passed off in steam, the weight of which is 6·22 lbs. Accordingly, taking the smallest quantity above given, then each pound of fuel will evaporate 6·22 of water. It must be allowed, that the mode of testing the power of a coal by the quantity used in reference to the power of the engine, is a very fallacious one; at the same time, however, as what I have stated is a practical result, deduced from numerous trials, I bring it forward to show, that that obtained in my experiment is not, as some may at first sight be inclined to suppose it, below what usually occurs.

[To be concluded in our next.]

INFLUENCE OF RAILWAYS IN DEVELOPING THE MINERAL RESOURCES OF A COUNTRY.

On our recent trip to Darlington, at the opening of the Great North of England Railway, the probable influence of that undertaking on the commercial interests of the district through which it passes, was naturally a subject of inquiry. While obtaining information as to this point, in reference to the line just completed, we learned a number of facts in relation to several of the previously existing northern railways, which appear worthy of being recorded, to illustrate the power of those great means of communication to develope the resources of a country. Before the opening of the Stockton and Darlington Railway, the export trade in coals might be said to be confined to the rivers Tyne and Wear. That railway was originated chiefly in order to supply the wants of the district it traverses in reference to fuel; and the estimate then made of the probable quantity of coals which would pass along the line, was, that there would be 80,000 tons for the neighbourhood, and 10,000 for export annually. The number of tons now carried by the company is, for the neighbouring districts, 130,000 tons; for exportation, 560,000 tons yearly. In the meantime, the Clarence Railway, terminating on the Tees, has been brought into operation, and contributes to the coals exported probably not less than 150,000 tons per annum. At a later period, the Marquis of Londonderry constructed his harbour of Seaham, a port about four miles south of Sunderland; it is difficult to state the quantity thence exported yearly, but it probably exceeds 300,000 tons. At a still more recent period, the ancient fishing town of Hartlepool has become the scene of the export of a still larger quantity. How striking is the contrast between the state of Durham at the present time, and at the period when Doom's-day Book was compiled! The amount of money annually received within thirty miles of Darlington, for coals alone, may be roughly stated at 4,000,000,000*l.* sterling (of course, this area embraces Newcastle and its vicinity); but a large proportion of this enormous revenue flows into that county, of which nothing better could be said by the surveyors of William the Conqueror, than "Durham is waste."—*Leeds Mercury.*

New Anti Dry-Rot Process.—Sir W. Burnett has taken out a patent for a new mode of accomplishing the preservation of timber, canvas, cordage, and other articles used in the construction of houses, ships, &c., from the dry-rot, mildew, and other effects of warmth combined with moisture, so destructive to substances of vegetable origin. This week Mr. Jackson visited Liverpool with some of the more portable specimens illustrating the value of the process. The specimens we had an opportunity of seeing on Wednesday were principally dragged sail canvas, of which pieces, prepared and unprepared, had been exposed to tests of different descriptions. We had an opportunity also of observing the process renders wood altogether uninflammable and nearly incombustible. We do not know that it will make it particularly popular with the rope-makers, but Sir William Burnett recommends the dissolution of tar for yarns, and produces strong evidence to show that white yarn prepared in 37½ per cent. stronger than the like weight and gravity of hemp worked with tar in the usual way.—*Liverpool paper.*

Specific Heats of Compound Bodies.—Regnault, in his researches on the specific heats of compound bodies, either liquid or solid, arrives at the following conclusions:—1. In metallic oxides of the same chemical formulæ, their specific heats are in inverse proportion to their atomic weights. 2. In the sulphates composed of one atom of sulphur, their specific heats are in inverse proportion to their atomic weights. 3. In compound bodies, having the same electro-negative elements and a like atomic constitution, the specific heats are in inverse proportion to their atomic weights. 4. In all compound bodies of the same atomic composition and chemical constitution, their specific heats are in inverse proportion to their atomic weights.—*Complete Reader.*

OFFICIAL ASSIGNEES.

A numerously-attended public meeting was held on Thursday, the 15th inst., at the London Tavern, to consider the best means of preventing the losses occasioned by Mr. Abbott falling on the creditors—also of appointing a committee to inquire if there were not funds arising from unclaimed dividends, &c., in the Court of Bankruptcy, which might be made available for that purpose.

Benjamin Hawes, Esq., in the chair.

Mr. Pennel (who attended, with Mr. Belcher, his co-assignee, at the request of Mr. Wilkinson) said, that any statements he might make must be received with considerable latitude, the data upon which the assignees were acting being so imperfect; the fraud and deficiencies of Mr. Abbott amounted to between 60,000*l.* and 70,000*l.*, and the assets to about 20,000*l.*, but which were of such a speculative character that their *bonâ fide* value was not easily ascertained.

Mr. Wilkinson argued at considerable length, that as the official assignees were forced on the creditors, they ought not to be responsible for their conduct, but look from whence their authority emanated for redress. The funds which he considered might be made available were those arising from the Bankruptcy Court, which amounted to upwards of 500,000*l.* He concluded by urging the creditors to apply to Parliament to make good the defalcations of Mr. Abbott from that fund, and he thought that it was at least a fair arguable point, that, as the defaults were made by a public servant, they ought to be made good by the public.

A further discussion ensued, in the course of which the following resolutions (as amended) were unanimously agreed to, and a committee named (with liberty to add to their numbers) to carry into effect the object of the meeting:—

1. That it was the duty of Mr. Abbott, as it is the duty of all official assignees, to pay into the Bank of England all monies received on account of bankrupts' estates as soon as they should amount to 100*l.*, and to produce the vouchers of his having done so to the commissioners of the Court of Bankruptcy, and that, therefore, an inquiry ought to be instituted into the circumstances under which Mr. Abbott's large defalcations, as official assignee, have arisen.

2. That Mr. Abbott having been appointed an official assignee by the Crown (the Lord Chancellor), and having, under the existing law, received the proceeds of the several bankrupts' estates intrusted to his care, this meeting is of opinion that it would be manifestly unjust that losses occasioned by misconduct should fall upon the creditors, they having had no voice in his appointment.

3. That this meeting considers it to be desirable that an inquiry should be made as to the expediency of an alteration being made in the existing law for giving to the trade assignees chosen by the creditors a greater control over the bankrupt's estate than they at present possess, for the purpose of insuring its being duly applied.

4. That it is expedient that a committee should be appointed to consider the propriety of taking measures for making good to the creditors the losses occasioned by Mr. Abbott's defalcations, and to consider the best means to be adopted for obtaining such an alteration in the law as shall be calculated to prevent similar defalcations in future, or in such way as may be deemed most eligible, and to take such steps with reference to those objects as they may think desirable.

After a vote of thanks to the chairman, the meeting separated.

Devon and Cornwall Railway.—A special committee was held at Truro on Wednesday last, to receive Captain Moorsom's report on his survey of a line of railway through Devon and Cornwall, giving a comprehensive description of the country between Exeter and Falmouth—showing the best line—and also for a branch to Plymouth, with Mr. Rendel's proposed line—keeping in view, at the same time, the extension of the line from Truro to Penzance. An area of 700 square miles had been surveyed, and it was considered that the best communication might be effected by a trunk line northward of Dartmoor to Lealford—branching off to Plymouth and Falmouth. The estimate for the completion of the railway was taken at 1,331,839*l.* The committee appeared highly gratified with Captain Moorsom's statement. The sub-committee were then requested to prepare a report, to be presented at a county meeting, to be convened early after the present Parliamentary session.

Novel Bankruptcy Case.—An interesting case of bankruptcy was discussed at the Bankruptcy Court, a short time since, which happened as far back as the year 1796. The bankrupt, a Mr. Philip, of Hungerford-market, went out to America in 1794; he and all his family died some years ago. The debts, some of them of more than forty years' standing, were some time ago paid in full; and recently ten shillings in the pound of interest was ordered to be paid. There will remain a balance of nearly 500*l.* a-year after satisfying all demands.

FROM THE LONDON GAZETTE.

Tuesday, April 13.

INSOLVENTS.

April 12—James Shaw, Carlisle-street, Lambeth, builder.

Benjn. Williams, Liverpool, and Margam tin plate works and Maesteg Iron Works, Glamorganshire, merchant.

BANKRUPTCY ENLARGED.

Thos. Tripp and Jos. Bean, Brook, and Belfast, and Enniskillen, Ireland, distillers.

John Wilkinson, Brymbo, Denbighshire, ironmaster.

BANKRUPTCY ANNULLED.

Henry Laffer, Liverpool, merchant.

BANKRUPTS.

F. Hoskins, Birmingham, wine merchant. [Pollock, Basinghall-street.

J. Warburton, Liverpool, tailor. [Crowder and Maynard, Mason's-horse-place.

R. Jones, Liverpool, block maker. [Norris and Co., Bartlett's-buildings.

W. Butler and R. Parkes, Birmingham, wine merchants. [Holmes, Doctors'-commons.

E. Jeanes, Exeter, bookseller. [Chown and Weblake, Temple. [mons.

J. Latham, Bain, near Snaith, Yorkshire, seed merchant. [Baxter, Lincoln's Inn-fields. [Fleet-street.

B. Brooks, Badgworth, Somersetshire, tenant dealer. [Paterson, Bouverie-street.

N. Emmerson, Bishop Auckland, Durham, mercer. [Meredith & Co., Lincoln's Inn.

W. Murray, Manchester, innkeeper. [Addington, Gregory, and Co., Bedford-row.

O. K. Gill, Whittle-le-Woods, Lancashire, calico printer. [Addington and Co.

H. Cox, Nottingham, grocer. [Johnson, Son, and Weatherall, Temple.

DIVIDENDS.

May 1, R. Brine, Hart-street, Crutched friars, wine merchant—M., J., and T. H. Evans, Pump-row, Old-street, paper manufacturers—R. Carruthers, Lower Thames-street, wholesale cheesemonger—R. Heyward, Leeds's Cornhill-street, linendraper—A. J. Hosier, Portugal-street, Lincoln's Inn-fields, victualler—June 14, M. May, Devonport, earthenware dealer—12, C. Poulter, Long Melford, Suffolk, dealer—10, T. B. Oliver, Nottingham, hosier—, J. Upjohn, Crawford, Lincolnshire, cattle dealer—10, R. Morris, Gloucester, coach maker—10, A. Fussell, Oxford, ironmonger—1, J. Dilworth, R. Arthington, and R. Birkett, Lancaster, bankers—5, J. Wilkinson, Brymbo, Denbighshire, ironmaster—, J. C. Knill, Gloucester, tailor—8, J. Foster, Gloucester, painter—8, J. Wile, Stafford, ironmonger—7, J. V. Storey, Newcastle-upon-Tyne, hosiery—.

Certificates to be granted, unless cause be shown to the contrary, on or before May 4.

T. Lee, Crakfield, Durham, draper—H. Scott, Sunderland, draper—S. Wilson, Radford, Nottinghamshire, builder—G. Coles, jun., Portsmouth, coach maker—H. Cunliffe, Southampton, brewer—J. Denew, Charles-street, Berkeley-square, auctioneer—J. S. Bull, Clapham-road-place, Clapham-road, wheelwright—T. Wood, Leeds, cloth manufacturer—T. Prankard, Finchurch-street, merchant—R. Law, Manchester, banker—W. Wheelwright, Leeds, dyer—R. H. Hart, Gateshead, Durham, glass manufacturer—J. Caton, Preston, Lancashire, cotton spinner—S. Young, Newcastle-upon-Tyne, scrivener—M., J., and T. H. Evans, Pump-row, Old-street-road, paper manufacturers.

Friday, April 16.

INSOLVENTS.

April 14.—Robert Wilkin Robinson, sen., Bedford, grocer.

Robert Wilkin Robinson, jun., Bedford, wine merchant.

15.—Edward Dollman, Church-court, Clement's-lane, City, merchant.

Robert Benning, Bridge-street, Westminster, milkman.

John Fisher, Flimwell, Kent, miller.

16.—William Knott, Swallow-street, St. James's, wine cooper.

BANKRUPTS.

W. Bell, Paternoster-row, bookseller. [Lewis, Vernham buildings.

T. Arnold, Paternoster-row, bookseller. [Lewis, Vernham buildings.

M. Rydick, London-wall, licensed victualler. [Sawyer, New-inn, Chesapside.

F. and C. G. Wakefield, Old Broad-st., brokers. [Egan and Co., Essex-st., Strand.

Susannah Bedingfield, Needham-market, Suffolk, yarn manufacturer. [Jones and Co., John-street, Bedford-row.

J. Bedingfield, Sto-market, Suffolk, surgeon. [Walter and Co., Symond's Inn.

J. Price, J. Foster, and J. Price, jun., Tyerill, Somersetshire, manufacturers. [Chown and Weblake, King's Bench-walk, Temple.

C. Hepper, Liverpool, hotel keeper. [Baxter, Lincoln's Inn-fields.

J. Nicholson, Cheltenham, brewer. [Bay and Co., Lothbury.

W. Hallwell, Manchester, cotton manufacturer. [Johnson and Co., Temple.

DIVIDENDS.

May 7, F. Emmett, Norbiton-common, Surrey, farmer—T. Carter, Throgmorton-street, stock broker—J. Galloway, Thibaud's-road, Red Lion-square, ironmonger—April 30, E. Lee, Guildford, baker—May 11, H. B. Evans and B. Byton, Northumberland-street, Strand, navy agents—J. P. De Gruchy, and P. Guest, London, merchants—J. Phillips, High-street, Whitechapel, linendraper—J. Hendon, Bishopsgate-street, linendraper—April 24, C. Webster, sen., Manchester, banker—May 10, B. Hutchinson, Manchester, merchant—11, W. Stone, Gloucester—6, J. Higham, Birmingham, victualler—8, J. Thompson, Ambleside, Westmoreland, bobbin manufacturer—8, G. Perrins, Worthing, wine merchant—14, T. Cruden, Leeds, coach proprietor—June 11, J. Bunney, Bolton-le-Sands, Lancashire, cattle dealer—May 8, J. Williams, Nailsworth, Pembrokeshire, general shopkeeper—11, B. Hogg, Armley, Yorkshire, maltster—14, W. A. Chaveau and J. C. Kemp, Liverpool, merchants—8, R. Tattersall and T. Tattersall, Liverpool, corn merchants—8, C. Shorn, Liverpool, merchant—11, W. Oswell, Manchester, commission agent—11, D. Sheridan, Tredegar, Monmouthshire, innkeeper.

Certificates to be granted, unless cause be shown to the contrary, on or before May 7.

A. D. Leatham, Liverpool, ironmonger—T. B. Lonsdale, Hanover-street, Walworth, coal engraver—S. Chappell, Lawrence-lane, city, butcher—J. G. F. Heyligar, Tottenham-court-road, silversmith—W. Marsden, Manchester, yarn merchant.

MEETINGS OF SCIENTIFIC BODIES.

IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Royal Asiatic	14, *Grafton-street*	Saturday	2 P.M.
Statistical	4, St. Martin's-place	Monday	8 P.M.
British Architects	16, *Grosvenor-street*	Monday	8 P.M.
Linnæan	Soho-square	Tuesday	8 P.M.
Horticultural	21, Regent-street	Tuesday	2 P.M.
Civil Engineers	25, Great George street	Tuesday	8 P.M.
Architectural	33, Lincoln's Inn-fields	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	7½ P.M.
Geological	Somerset House	Wednesday	8½ P.M.
London Institution	Finsbury-circus	Wednesday	12 P.M.
Royal	Somerset House	Thursday	8½ P.M.
Bl. Society of Literature	St. Martin's place	Thursday	4 P.M.
Royal Institution	Albemarle-street	Friday	8½ P.M.
Westminster Medical	Exeter Hall	Saturday	8 P.M.

PUBLIC COMPANIES.

MEETINGS.

Independent Gas Light & Coke Co.	London Tavern	April 21	12.
Blaenavon Iron and Coal Company	London Tavern	23	1-2.
Bastenne and Ganjac Bitumen Co.	St. Mildred's-court, Cornhill	24	1.
Newcastle-on-Tyne & Carlisle R'way	68, Close, Newcastle	27	12.
Cornwall Great United Mines	George and Vulture Tavern	29	2.
London Corn Exchange Company	Subscription Room	29	1.
New Zealand Company	Broad street Buildings	May 1	1.
Hayter Granite Company	Scott's-yd., Bush la., Cannon-st.	1	3.
Gas Light and Coke Company	Crown and Anchor	1	11.
Anglo-Mexican Mint Company	9, New Broad-street	4	1.
Newport Docks Company	Office, Newport	6	12.
Nat. Provincial Bank of England	112, Bishopsgate street	13	12.

CALLS.

Redmoor Mining Company	10s.	Apr. 21	Bosanquet and Co.
Great North of England Railway	10*l.*	21	J. Pease, Darlington.
Agricultural and Commercial Bank of Ireland	10*l.*	21	Office.
Hartlepool Dock and Railway	2½*l.*	21	Barnett and Co.
West London and Westminster Cemetery Co.	*Nil.*	28	Bouverie and Co.
Wheal Wallis Mine	5s.	May 10	Manchester & L'pool Dist. Bk.
Hungerford and Lambeth Suspension Foot Bridge Co.	2*l.* 10s.	15	London and County Bank.
Rio de Ancel Gold-stream Works	10s.	22	Stone, Martin, and Co.
Cambrian Iron and Spelter Co.	2½*l.*	June 1	London Joint-Stock Bank.

DIVIDENDS.

United Hills Mine Company	10s. per share	Office, Adam's-court	Apl. 15.
Commercial Bk. of New Orleans	4 per cent.	Reid, Irving, and Co.	16.

LATEST PRICES OF FUNDS, SHARES, ETC.

ENGLISH FUNDS.

Consols Money, 90⅞ ⅛
Ditto Account, 9 ⅛ ⅛
New 3½ per Cents., 99½ ⅛
Reduced 3 per Cents., 89¾ ⅛
Reduced 3½ per Cents., 99 ⅛
Long Annuities, 12⅛
Bank Stock, 172 3
Exchequer Bills, 13 15 pm.

FOREIGN FUNDS.

Belgian Bonds, 5 per Cent., 101 3
Brazil, 5 per Cent., 69 70
Danish, 3 per Cent., 77½ 80
Dutch, 2½ per Cent., 52 ⅛
Ditto, 5 per Cent., 99½ 9
Russian, 5 per Cent., 112½ 113½
Portuguese, 5 per Cent., 33¾ ⅞
Ditto, 3 per Cent., 20 ⅛
Spanish, Actives, 5 per Cent., 23 ⅛
Chili, 6 per Cent., 89 91
Colombian, 6 per Cent., 22½ 3
Mexican, 5 per Cent., 30½ 1

SHARES.

London & Blackwall R'way, 5⅛ ⅛ dis
London and Brighton, 3⅛ ⅛ dis.
London and Croydon, 12½ ⅛ per sh.
London and Birmingham, 67 9 pm.
London & Sh. Western, 37½ 8 per sh.
Eastern Counties, 1¾ ⅛ dis.
London and Greenwich, 0 ⅛ per sh.
Great Western, 79 80 pm.
Ditto A Shares, 14½ ⅞ pm.
North Midland, 22 20 dis.
South Eastern, 14⅞ ⅛ dis.
Colonial Bank, 9¾ 10¼ pm.
London & Westminster, 2¼ 2 pm.
London Joint-Stock, 2 ½ pm

MONEY MARKET AND CITY NEWS.

SATURDAY.—The English funds have been in a very quiet state all day, with little business.

The foreign securities have also been particularly inactive.

Railway shares continue pretty steady.—London and Westminster Bank, new, 7⅛.

MONDAY.—At the Stock Exchange to-day very little business was transacted and the jobbers and brokers were, for the most part, occupied with arranging their accounts for the three successive settlements which take place this week in the public securities—viz., that in the share market to-morrow, the foreign funds on Wednesday, and the English funds on Thursday. Consols for Money and the Account left off, as they opened, 89¾ to 90; but a purchase in Exchequer Bills, to the extent of 80,000*l.* by a leading broker, raised the premium on that security to 11s. 13s., which was the last price quoted. India Bonds closed per to ½ pm. 3 per Cents. Reduced, 89¾ to 89; 3½ per Cents. Reduced, 99⅞ to ⅞; New 3½ per Cents., 99¼ to 99; Long Annuities (expiring Jan. 5, 1860), 12⅛; and Bank Stock, 171 to 172.

The foreign securities have undergone no alteration. Spanish Actives leaving off 23 to ⅛; Portuguese 5 per Cents., 33½ to ⅝; ditto 3 per Cents., 19¾ to ⅞; Colombian, 22¾ to ⅞; Mexican, 30¾ to ⅝; Dutch 2½ per Cents., 51¾ to ⅝; ditto 5 per Cents., 99¾ to ⅞; Danish, 76 to 78; Brazilian, 68 to 70; and Belgian, 101 to 1-3.

Birmingham shares were finally quoted to-to 7 pm.; Blackwall, 5⅞ to ⅞ dis.; Brighton, 4⅛ to ⅜ dis.; Great Western, 77½ to 80 pm.; North Midland 23 to 20 dis.; ditto new, 2 to 1 dis., and Gosport, 6 to 7 pm.—Rhymney Iron Company, 24½.—London and Westminster Bank, new, 7⅛; Union of Australia, 33¼.

TUESDAY.—In the English funds very few bargains were made, and the prices were without alteration.

In the foreign market there was scarcely any business doing, the jobbers being principally engaged in arranging their accounts previous to the settling, which takes place to-morrow. Mexican stock was quoted rather higher, but in the other foreign securities there was no alteration.

In railway shares the settlement was easily and satisfactorily arranged, and the market generally firm.—Commercial Bank of London, 17⅞; London Joint Stock, 12⅛ to ⅜; Union of Australia, 33¼; Union of London, 9¼.

Generally speaking, there was no material alteration to day in the rates of exchange upon the principal foreign places.

The premium on gold at Paris is 7⅛ per mille, which, at the English Mint price of 3*l.* 17*s.* 10½*d.* per ounce for standard gold, gives an exchange of 25. 35, and the exchange at Paris on London at short being 25. 40, it follows that gold is 0·40 per cent. dearer in London than in Paris.

By advices from Hamburgh the price of gold is 428 per mark, which, at the English Mint price of 3*l.* 17*s.* 10½*d.* per ounce for standard gold, gives an exchange of 13. 6*d.*, and the exchange at Hamburgh on London at short being 13. 7½, it follows that gold is ·47 per cent. dearer in London than in Hamburgh.

WEDNESDAY.—More business has been transacted in the various Government stocks to day, and, what with money being easy, and purchases made by the speculators to arrange to-morrow's account, values have improved nearly ¼ per cent., and the market closing firm.

The half monthly settlement in the foreign securities was unattended with any particular circumstance. Money was obtainable at easy rates, and the tendency of the account was more in favour of the speculators for the rise than otherwise. Prices in consequence were generally firmer.

Railway shares have also an upward tendency, and prices were at the close of the day very firm.—Colonial Bank, 9¾; Union of Australia, new, 1⅛; London and Westminster, new, 7⅛ to ⅛.

The vacancy of broker to the Equitable Assurance Company, occasioned by the failure of Messrs. Wakefield and Co., has been filled to-day by the appointment of Messrs. Capel, Cureton, and Cundy. It is understood the applicants for this appointment were twenty-one in number.

THURSDAY.—Consols for Money opened very firm, and advanced from 90¼ to 90⅝, but subsequently the price was not supported, and it closed 90 ⅛ to ¼; for the Account the last quotation was 90½ to ⅝, having been 90⅞. Money was excessively easy, and, at the close of the day, commanded no more than a nominal value. As an instance of this may be mentioned a now very unusual circumstance which occurred in the course of business—viz., the leading Bank notes upon stock, without any interest being demanded for the temporary accommodation.

The foreign securities were almost entirely neglected, so great was the business in the English market; prices, nevertheless, were steady.

The business doing in railway shares was limited; London and Birmingham gave way ¼ per share.—Cala Branca Mining Company, ⅜ to ⅝; Real del Monte, unregistered, ⅞.—Union Bank of Australia, 34¼; ditto, new, 1⅛; London and Westminster, 7⅛; ditto, new, 7.

By her Majesty's packet *Penguin* we have received Rio Janeiro papers of the 7th of March. The exchange on England was 30, and the locality per Cent. Stock, 74½; the *Penguin* brought 50,000*l.* on merchants' and money accounts.

FRIDAY.—In the English funds the business transacted was principally confined to sales, which, under the circumstances that stock was not so much in demand as yesterday, when the account was closing, and that the question between this country and America, by the deferring of M'Leod's trial, still appears open, caused some unwillingness in prices. Hence the decline exhibited in to-day's quotations. Consols for money opened 90⅛, declined to 90⅜, and closed 90⅝ to ¾; for the account the prices ranged between 90⅝ and ¾, and closed ⅞ to ¾ per Cents. Reduced left off 90¾; 3½ per Cents. Reduced, 99; Long Annuities (expiring Jan. 5, 1860), 12⅛ 13-16; ditto, to years (expiring Jan. 5, 1860), 3 1-16 3-16; India Stock, 264; ditto Bonds, par to 2 premium; Bank Stock, 172 to 173; and Exchequer Bills, 13s. to 15s. pm.

The foreign securities were also rather better, and very little business was transacted. Spanish Actives left off 23 to ⅜; Mexican, 30¾ to ⅝; Colombian, 2⅞ to ⅜; Portuguese 5 per Cents., 33¾ to ⅞; ditto 3 per Cents., 20 to ⅛; Dutch 2½ per Cents., 52 to ⅝; Danish, 77½ to 78; Brazilian, 68 to 70; and Belgian, 101 to 3.

Railway shares have undergone no material alteration. Birmingham are 67 to 9 pm.; Blackwall, 5⅞ to ⅝ dis.; Great Western, 79 to 80 pm.; North Midland, 22 to 20 dis.; ditto new shares, 1 dis. to par; South Western, 37½ to 38 per share; Manchester and Leeds, 3 to 4 dis.; Manchester and Birmingham, 1¼ to ⅜ dis.; Birmingham and Derby, 8 to 10 dis.; Brighton, 4⅛ to ⅜ dis.; South Eastern, 14⅞ to ⅞ dis.; London and Greenwich, 0 to 1 per share; Gosport, 6½ to 7½ pm.; and South Eastern, 13 to 14½.—Colonial Bank, 9¾; London Joint Stock, 12; London and Westminster, 7⅛; Union of Australia, 34¼ to ⅜.—Australian Agricultural Company, 41; Van Diemen's Land Agricultural, 6 to ½.

There was a fair amount of business done to-day in the foreign exchanges, and the rates remained the same as last post.

LATEST PRICES OF BRITISH STOCKS.—3 per Cent. Consols, 90⅝—½; Stock, 87⅞—Bills New, 0-0, 87½ to ⅞—34 per Cent. Indian ness, 90—Bank Stock, 172—Kings town Railway, 9—Drogheda, 7—National Insurance Company, 10—City of Dublin Steam Company, 11½—Ditto stock, 140; 87½—British and Irish Steam Company, 10½—Hibernian Bank, 35½—Royal Bank, 55—Mining Company of Ireland, 2½—Wicklow Copper Mine, 5.

UNITED STATES.—Papers and letters from the United States to the 1st inst. were received in London on Thursday night, brought by the *Caledonia* steamer. These papers contain no political intelligence of interest—if we except the postponement of the trial of Mr M'Leod, on account of a legal informality. The paragraph announcing the fact is the only reference to the subject that we find in the papers before us. We regret to say the *Caledonia* brings no intelligence about the *President*. Commercial affairs throughout the States have slightly improved. The rate of exchange on England for the packets, was 7 to 7½ per cent. pm., and a good deal of business was done for the *Caledonia*. A good deal of election excitement prevailed in Canada.

PARIS, April 15.—5 per Cents., 113*f.* 75*c.*; 4 per Cents., 99*f.* 40*c.*; 3 per Cents., 78*f.* 85*c.*; Bank Actions, 3170*f.*; Laffitte Bank, (600*f.* shares, 1075*f.*; ditto 500*f.* shares, 516*f.*; Belgian Bank, 815*f.*; Belgian 5 per Cents. 101; New Loan, 101¼; Spanish Active, 23⅜; ditto Passive, 5¼; Portuguese 3 per Cents., 20; Neapolitan, 108*f.* 90*c.*; Roman, 103¾.—St. Germain Railway, 690*f.*; Versailles, R. B., 365*f.*; ditto L. B., 235*f.*; Orleans, 492*f.* 50*c.*; Strasburgh to Bâle, 236*f.* 25*c.*

AMSTERDAM, April 16.—Actual Debt, 2½ per Cents., 51¼ to ⅜; 5 per Cents., 99 to ⅛. Amort Synd., 4⅛ per Cents., 89¼ to 90; 3½ per Cents., 72½ to 3; Commercial Company, 4½ per Cents., 106¼ to 7; Loan, 1839, 5 per Cents., 97⅛ to ¾.

BERLIN, April 8.—St. Schuld Sch., 4 per Cents., 104 to 3½; Prussian-English Bonds, 1830, 4 per Cents., 100⅝ to 100⅞. Exchange on London, 6 19½.

BRUSSELS, April 9.—Actual Debt, 2½ per Cents., 52¼; Rothschild's Loan, 99⅛; Loan of 30,000,000, 90; Loan of 37,000,000, 70½; ditto, 1840, 100; Bank of Belgium, 77⅛.

HAMBURGH, April 3.—Austrian 5 per Cents., 106 money; Bank Shares, 1625 money; Russian-English Loan, 107½ bills, 107¼ money; 5 per Cent. Hamburgh Certificates, 102⅛ bills, 102⅜ money; 5 per Cents., Hope and Co., 3d and 4th Series, 97 bills, 96½ money; ditto, in Certificates, 97 bills, 96½ money; New 4 per Cents., 1840, 96⅛ bills, 96⅝ money; Dutch Actual Debt, 2½ per Cents., 49½ money; Polish Bonds, 14½ bills; New Tickets, 162 bills; Danish-English Loan, 3 per Cents., 74⅛ bills, 74½ money; Spanish New 5 per Cents., 16½ bills.

VIENNA, April 1.—5 per Cents., 106½; 4 per Cents., 98⅛; 3 per Cents., 78; Bank Shares, 1634.

BIRMINGHAM, Thursday.—London and Birmingham Railway, 158*l.*; Great Western, 93¼*l.*; London and South-Western, 37½*l.*; London and Brighton, 46¼*l.*; London and Croydon, 13½*l.*; Eastern Counties, 9½*l.*; London and Greenwich, 8¼*l.*; Birmingham and Derby, 7½*l.*; Birmingham and Gloucester, 80*l.*; Bristol and Exeter, 86*l.*; Cheltenham and Great Western, 53¼*l.*; Manchester and Leeds, 66¼*l.*; Midland Counties, 90*l.*; North Midland, 78*l.*; York and North Midland 84¼*l.*—*Midland Counties Herald.*

BRISTOL, Thursday.—Our market has been buoyant to-day, and a more general inquiry for railway shares, closing firm at my quotations.—Great Western Railway, 95¼*l.* to 96*l.*; ditto halves, 65*l.* to 65¼*l.*; ditto fifths, 11¾*l.* to 12*l.*; Bristol and Exeter, 85*l.* to 86*l.*; Birmingham and Gloucester, 79*l.* to 80*l.*; Cheltenham Union, 32½*l.* to 33*l.*; Bristol and Gloucester, 24*l.* to 34.—Bristol Gas Company, 32*l.*; Clifton Gas, 28*l.* LUKE ARNOLD.

HULL, Thursday.—The slight improvement in shares, noted in our last, has been sustained during the week, although it has not had the effect of increasing the number of bargains. The tone of the market is, however, decidedly better.—Birmingham and Derby Railway, 79*l.*; Edinburgh and Glasgow, 31*l.*; Grand Junction, 21¼; Great North of England, 67¼; Great Western, 93½; Hull and Selby, 44*l.*; Leeds and Selby, 93*l.*; Liverpool and Manchester, 198*l.*; London and Birmingham, 158*l.*; London and South-Western, 37*l.*; Manchester and Leeds, 67*l.*; Midland Counties, 90*l.*; North Midland, 78*l.*; Sheffield and Rotherham, 32*l.*; South-Eastern and Dover, 18¼; York and North Midland, 79*l.*—York City and County Bank, 36*l.*; Yorkshire District, 7½*l.*; Hull, 7½*l.*; Yorkshire Agricultural, 4*l.*—Hull Dock Company, 120*l.*—Hull Shipping Company, 10*l.*—Hull Flax and Cotton Mills, 107*l.* buyers. COLLINSON & FLINT.

LEEDS, Thursday.—In consequence of the unavoidable absence from home of the writer, we are unable to forward our usual report this week.

R. B. WATSON & CO.

LIVERPOOL, Thursday.—We have had a very steady market during this week, and prices well maintained, although not much business doing. The *Caledonia* arrived this morning; we have not much news from America, and our market has been heavy, though closed with a better feeling.—Birmingham and Gloucester Railway, 79½; Eastern Counties, 9¼; ditto debentures, 7½; Glasgow, Paisley, and Greenock, 27*l.*; Grand Junction, 21½; ditto quarter-shares, 28½; ditto (late Chester and Crewe), 5¼; Great Western, 94; ditto half shares, 64½; ditto fifth shares, 11¾; Lancaster and Preston, 32½; London and Birmingham, 158*l.*; ditto quarter-shares, 2½; Midland Counties, 90*l.* to 89*l.* RICHARD DAWSON.

MANCHESTER, Thursday.—There continues to be an inclination to invest in railway stock, which is rather kept in check by the rise aimed at. London and South Western, 38*l.*; Great Western, 95½; Manchester and Birmingham, 21¾ ⅛; Manchester and Leeds, 65¾; Chester and Birkenhead new, 19½.—Manchester and Liverpool District Bank, 10*l.* 18s. 9*d.*; Bank of Manchester, 7½.—Ashton and Oldham Canal, 110*l.*; Rochdale Canal, 86*l.*

EDINBURGH, Thursday.—We have had a considerable rise during the past week in railway shares. Edinburgh and Glasgow have advanced from 34*l.* to 36¼; Glasgow and Greenock from 25*l.* to 26*l.*; Dundee and Arbroath from 27¼*l.* to 28½; and Garnkirk, in consequence of the further conversion of debt into stock, from 2¼ to ⅓. There has also been some improvement in bank stocks, although less marked. Royal has risen from 15¾ to 15¾, and Glasgow Union from 83*l.* to 84*l.*, while in others there has been more doing, although at last quotations.

ROBERT ALLAN.

GLASGOW, Wednesday.—The extreme depression which lately existed in the money market has disappeared; the fear of an injurious effect being produced by the statement of the quarter's revenue has been removed. The stock of bullion in the Bank has continued to increase, and the accounts from America and China, although indefinite, have, on the whole, operated favourably, by giving rise to the expectation of amicable relations being established with these countries. A more decided improvement may be looked for, should succeeding accounts be at all satisfactory. There has been an improved demand for a considerable number of the bank stocks. Royal Bank has advanced from 15¾*l.* to 15¾*l.*, and Glasgow Union from 83*l.* to 85*l.* Clydesdale, City of Glasgow, and Glasgow Joint-Stock, are in fair demand. Western has receded from 73½*l.* to 73*l.*, and Eastern from 14¾*l.* to 14¾*l.* The shares of the insurance companies, with the exception of the Hercules and Life Association of Scotland, have been dull of sale, and prices have been barely supported. An improvement has taken place in several of the Scotch railways. Edinburgh and Glasgow has advanced 2*l.* per share, with a good demand at this advanced price. Garnkirk has advanced from 28*l.* to 30*l.*, and Wishaw and Coltness from 7¼*l.* to 8¼*l.* per share. The opening of the Glasgow and Greenock Railway has given an impetus to the stock, which is now in request at 40s. to 5-8s. pm. per share. Ayrshire, Monkland and Kirkintilloch, and Slamannan, are rather lower. Glasgow Water stock has advanced to 60¼*l.*, and Forth and Clyde Canal, in consequence of the very favourable report issued during the month, has advanced to 84*l.* A considerable advance has taken place on the principal English railways, as will be seen by the subjoined quotations of this and the previous month:—

	March 12.	April 12.
Great Western	86¼	92¾
London and Brighton	42½	45¾
,, Birmingham	154	160
,, South Western	35¾	37½
North Midland	70	78
,, Half shares	34½	38½
York and North Midland	79	81

JAMES WATSON.

EXPORTATION OF GOLD AND SILVER.—By the official return published by the Customs, the export of the precious metals from the port of London to foreign and colonial ports, for the week ending Thursday, the 8th inst., was as under:—

Silver coin to Hamburgh	208,200	ounces.
,, Rotterdam	136,000	,,
,, Belgium	6,400	,,
Silver bars to Hamburgh	31,600	,,

SALE OF COPPER ORES AT REDRUTH.

NO SALE on Thursday last.

Last Sale.—Standard, 172*l.* 6*s.*—Produce, 7½.

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Treovaran, 777; Trethellan, 553; Fowey Consols, 300; Par Consols, 220; Wheal Lydia and South Towan, 213; Holmbush, 2 S., North Downs, 123; Levant, 1 3; Great Wheal Charlotte, 113; Wheal Garland, 52; Wheal Kitty, 40; Polbreen, 16.—Total, 2350 tons.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels.—United Mines, 1810; Fowey Consols, 301; Consols, 296; Hallenbegis, 290; Treovaran, 210; Trethell, 190; Pervan Mines, 142; Cliff Downs, 30; Dunstanville Mines, 27; Wheal Budnick, 24; Trevorel, 13.—Total, 2843 tons.

FOWEY AND PAR CONSOLS.—It will be seen from the above return, as well as by reference to several of the recent Tributing Papers, that these mines retain their place in the scale of produce, though the contrary was so confidently predicted as the result of the system pursued in their management. That system which had always stood the test of minute investigation, and been highly commended by the public, could only have been impugned with the design of depreciating the value of the mines, injuring the credit of their principal proprietor, and creating a false impression that the copper market could not be properly supplied without foreign ores, the produce of slave labour—a design but ill concealed under the apparent purpose of pointing an argument in a controversy, in which no personal references should have been made, and no private considerations allowed to enter. Facts, however, have proved the fallacy of the malicious prediction; and we are happy to say that it is likely, from present appearances, to receive, for many years to come, that practical contradiction, which, as far as relates to Fowey Consols, is now supplied as often as the Cornish papers are published.—*West Briton.*

Particulars of copper ores sold in Cornwall, in the quarter ending March 31.—Copper ore, 32,943 21 cwts.—Fine copper, 2570 tons 10 cwts.—Amount of money, 20,403*l.* 1*s.* 6*d.*—Average standard, 1220. 11*s.*—Average produce, 7¾.—Average price 31 cwts. 42 1*s.* 6*d.*

CORNISH STEAM ENGINES.—Marazion, April 13.—The number of pumping engines reported this month is fifty-two. They have consumed 3610 tons of coal, and lifted 18,700,000 tons of water 10 fathoms high. The average duty of the whole is, therefore, 24,000,000 lbs. lifted one foot high by the consumption of a bushel of coal. THOMAS LEAN & BROTHER.

SALE OF COPPER ORES AT SWANSEA.

Copper ores for sale April 21.—Cutes 80, ditto 80, ditto 80, ditto 71, ditto 70, ditto 57, ditto 50, ditto 50, ditto 50